

STOCK ASSESSMENT AND FISHERY EVALUATION REPORT FOR THE
GROUND FISH FISHERIES OF THE GULF OF ALASKA AND BERING
SEA/ALEUTIAN ISLANDS AREA:

ECONOMIC STATUS OF THE GROUND FISH FISHERIES OFF ALASKA, 2019

by

Ben Fissel, Michael Dalton, Brian Garber-Yonts, Alan Haynie, Stephen Kasperski, Jean Lee, Dan
Lew, Chang Seung, Kim Sparks, Marysia Szymkowiak, Sarah Wise.

Economic and Social Sciences Research Program
Resource Ecology and Fisheries Management Division
Alaska Fisheries Science Center
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
7600 Sand Point Way N.E.
Seattle, Washington 98115-6349

November 12, 2020

The authors of the Groundfish SAFE Economic Status Report invite users to provide feedback regarding the quality and usefulness of the Report and recommendations for improvement. AFSC's Economic and Social Sciences Research Program staff continually strive to improve the SAFE Economic Status Reports for Alaska Groundfish and BSAI Crab to incorporate additional analytical content and synthesis, improve online accessibility of public data in electronic formats, and otherwise improve the utility of the reports to users. We welcome any and all comments and suggestions for improvements to the SAFE Economic Status Reports. Please contact Ben Fissel at Ben.Fissel@noaa.gov with any comments or suggestions to improve the Economic SAFEs.

This report will be available at:

<https://www.fisheries.noaa.gov/alaska/ecosystems/economic-status-reports-gulf-alaska-and-bering-sea-aleutian-islands>

Time series and plots of data presented in this report are available at:

<https://psesy.psmfc.org/PSESV2.html>

For additional information concerning this report contact:

Ben Fissel
Resource Ecology and Fisheries Management Division
Alaska Fisheries Science Center
7600 Sand Point Way N.E.
Seattle, Washington 98115-6349
(206) 526-4226
ben.fissel@noaa.gov

Dear Reader,

This preliminary draft report of the “Economic Status of the Groundfish Fisheries Off Alaska” is compiled for the express purpose of the Nov. 2020 meeting of the Groundfish Plan Teams. Certain aspects of this report are incomplete. A final and complete version of this report will be available prior to the North Pacific Fisheries Management Council meeting in Feb. 2021 where this document is reviewed by Scientific Statistical Committee. The data contained within this report are the most recent data available. As we finalize and validate the data in this report, the Economic and Social Sciences Research Program welcomes any feedback from readers.

Thank you,
Alaska Fisheries Science Center,
Economic and Social Sciences Research Program

Contents

| | |
|--|------------|
| Contents | iv |
| List of Figures | v |
| List of Tables | vi |
| 1 Executive Summary | 1 |
| 1.1 Report Card Metrics for the Alaska Commercial Groundfish Fisheries off Alaska 1993-2019 | 2 |
| 2 Overview of Economic Status Report, 2019 | 6 |
| 2.1 Introduction | 6 |
| 2.2 Description of the Economic Data Tables | 7 |
| 2.2.1 Groundfish and Prohibited Species Catch Data Description | 7 |
| 2.2.2 Ex-Vessel Prices and Value | 9 |
| 2.2.3 First Wholesale Production, Prices and Value | 10 |
| 2.2.4 Effort (Fleet Size, Weeks of Fishing, Crew Weeks) | 11 |
| 2.2.5 Economic Data Tables for the Commercial Pacific Halibut Fishery | 11 |
| 2.2.6 Description of the Category “Other” in Data Tables | 12 |
| 2.2.7 Additional Notes | 13 |
| 2.3 Request for Feedback | 13 |
| 2.4 Citations | 14 |
| 2.5 Acknowledgements | 15 |
| 3 Figures Reporting Economic Data of the Groundfish Fisheries off Alaska | 16 |
| 4 Tables Reporting Economic Data of the Groundfish Fisheries off Alaska | 19 |
| Alaska Economic Data Tables | 19 |
| Bering Sea & Aleutian Island Economic Data Tables | 33 |
| Gulf of Alaska Economic Data Tables | 67 |
| Economic Data Tables for the Commercial Pacific Halibut Fishery | 94 |
| 5 Economic Performance Indices for the North Pacific Groundfish Fisheries | 104 |
| 5.1 Introduction | 104 |
| 5.2 Economic Indices of the Groundfish Fisheries off Alaska | 106 |
| 6 Groundfish and Halibut In-season Ex-Vessel Revenue Estimates for 2020 | 127 |
| 6.1 Overview | 127 |
| 6.2 COVID-19 Impacts | 129 |

| | | |
|----------|---|------------|
| 6.3 | Methods | 130 |
| 6.4 | BSAI Groundfish and Halibut Landings and Revenues through September 2020 . . . | 130 |
| 6.5 | GOA Groundfish and Halibut Landings and Revenues through September 2020 . . . | 133 |
| 7 | Alaska Groundfish Price Projections | 136 |
| 7.1 | Introduction | 136 |
| 7.2 | Tabular Summary of Price Projection Results | 136 |
| 7.3 | Summary of Price Projection Methods | 139 |
| 7.4 | Ex-vessel Price Projections | 140 |
| 7.4.1 | Alaska Pollock Ex-vessel Prices | 140 |
| 7.4.2 | Pacific Cod Ex-vessel Prices | 142 |
| 7.4.3 | Sablefish Ex-vessel Prices | 146 |
| 7.5 | First-Wholesale Product Price Projections | 148 |
| 7.5.1 | Alaska Pollock | 148 |
| 7.5.2 | Pacific Cod First-Wholesale Prices | 153 |
| 7.5.3 | Sablefish H&G First-Wholesale Prices | 154 |
| 7.5.4 | Atka Mackerel H&G First-Wholesale Prices | 155 |
| 7.5.5 | Flatfish First-Wholesale Prices | 156 |
| 7.5.6 | Rockfish H&G First-Wholesale Prices | 161 |
| 8 | Wholesale Market Profiles for Alaska Groundfish | 164 |
| 8.1 | Global Groundfish Production & Key Markets | 165 |
| 8.1.1 | Global Whitefish and Other Marine Fish Production | 165 |
| 8.1.2 | Alaska's Position in the Global Whitefish Market | 167 |
| 8.1.3 | Alaska Groundfish Production and Market Summary | 167 |
| 8.2 | Alaska Pollock Product Market Profiles | 168 |
| 8.2.1 | Alaskan Pollock Fillets | 170 |
| 8.2.2 | Alaska Pollock Surimi | 175 |
| 8.2.3 | Alaska Pollock Roe | 180 |
| 8.2.4 | Alaska Pollock Headed and Gutted | 182 |
| 8.3 | Pacific Cod Market Profile | 185 |
| 8.4 | Sablefish Market Profile | 191 |
| 8.5 | Yellowfin Sole, Rock Sole, Atka Mackerel, and Pacific Ocean Perch Market Profiles . | 195 |

List of Figures

| | | |
|------|---|-----|
| 1.1 | Economic report card metrics. | 5 |
| 3.1 | Groundfish catch in the commercial fisheries off Alaska by species, 2003-2019. | 16 |
| 3.2 | Groundfish catch in the commercial fisheries off Alaska by species, (1984-2010). | 16 |
| 3.3 | Real ex-vessel value of the groundfish catch in the commercial fisheries off Alaska by species, 1992-2019 (base year = 2019). | 17 |
| 3.4 | Real ex-vessel value of the domestic fish and shellfish catch off Alaska by species group, 1992-2019 (base year = 2019). | 17 |
| 3.5 | Real gross product value of the groundfish catch off Alaska by species, 1992-2019 (base year = 2019). | 18 |
| 3.6 | Number of vessels in the domestic fishery off Alaska by gear type, 2005-2019. | 18 |
| 5.1 | Wholesale and ex-vessel value by region and sector 2007-2019. | 106 |
| 5.2 | BSAI at-sea wholesale market: species decomposition 2007-2019 (Index 2015 = 100). . | 107 |
| 5.3 | BSAI at-sea wholesale market: product decomposition 2007-2019 (Index 2015 = 100). . | 108 |
| 5.4 | BSAI shoreside wholesale market: species decomposition 2007-2019 (Index 2015 = 100). . | 109 |
| 5.5 | BSAI shoreside wholesale market: product decomposition 2007-2019 (Index 2015 = 100). . | 110 |
| 5.6 | BSAI shoreside ex-vessel market: species decomposition 2007-2019 (Index 2015 = 100). . | 111 |
| 5.7 | BSAI shoreside ex-vessel market: gear decomposition 2007-2019 (Index 2015 = 100). . . | 112 |
| 5.8 | GOA wholesale market: species decomposition 2007-2019 (Index 2015 = 100). | 113 |
| 5.9 | GOA wholesale market: product decomposition 2007-2019 (Index 2015 = 100). | 114 |
| 5.10 | GOA ex-vessel market: species decomposition 2007-2019 (Index 2015 = 100). | 115 |
| 5.11 | GOA ex-vessel market: gear decomposition 2007-2019 (Index 2015 = 100). | 116 |
| 6.1 | Alaska Groundfish and Halibut Cumulative Landings and Revenue by Year, 2014-2020. . | 127 |
| 6.2 | BSAI Groundfish and Halibut Cumulative Landings and Ex-vessel Revenue by Year . . | 128 |
| 6.3 | GOA Groundfish and Halibut Cumulative Landings and Ex-vessel Revenue by Year . . | 129 |
| 6.4 | BSAI Cumulative Landings by Species and Year | 131 |
| 6.5 | BSAI Cumulative Ex-vessel Revenue by Species and Year | 131 |
| 6.6 | GOA Cumulative Landings by Species and Year | 133 |
| 6.7 | GOA Cumulative Ex-vessel Revenue by Species and Year | 134 |
| 7.1 | Pollock BSAI trawl ex-vessel price projections and confidence bounds | 140 |
| 7.2 | Pollock GOA trawl ex-vessel price projections and confidence bounds | 141 |
| 7.3 | Pacific cod BSAI trawl ex-vessel price projections and confidence bounds | 142 |
| 7.4 | Pacific cod BSAI fixed gear ex-vessel price projections and confidence bounds | 143 |
| 7.5 | Pacific cod GOA trawl ex-vessel price projections and confidence bounds | 144 |
| 7.6 | Pacific cod GOA fixed gear ex-vessel price projections and confidence bounds | 145 |
| 7.7 | Pacific cod GOA fixed gear ex-vessel price projections and confidence bounds | 146 |
| 7.8 | Sablefish GOA fixed gear ex-vessel price projections and confidence bounds | 147 |

| | | |
|------|--|-----|
| 7.9 | Pollock surimi wholesale price projections and confidence bounds | 148 |
| 7.10 | Pollock fillet wholesale price projections and confidence bounds | 149 |
| 7.11 | Pollock deep-skin fillet wholesale price projections and confidence bounds | 150 |
| 7.12 | Pollock roe wholesale price projections and confidence bounds | 151 |
| 7.13 | Pollock head and gut wholesale price projections and confidence bounds | 152 |
| 7.14 | Pacific cod head and gut wholesale price projections and confidence bounds | 153 |
| 7.15 | Pacific cod fillet wholesale price projections and confidence bounds | 154 |
| 7.16 | Sablefish head and gut ex-vessel price projections and confidence bounds | 155 |
| 7.17 | Atka mackerel head and gut wholesale price projections and confidence bounds | 156 |
| 7.18 | Yellowfin (BSAI) head and gut wholesale price projections and confidence bounds . . . | 157 |
| 7.19 | Rock sole (BSAI) head and gut with roe wholesale price projections and confidence bounds | 158 |
| 7.20 | Rock sole (BSAI) head and gut wholesale price projections and confidence bounds . . . | 159 |
| 7.21 | Arrowtooth head and gut wholesale price projections and confidence bounds | 160 |
| 7.22 | Rockfish head and gut wholesale price projections and confidence bounds | 161 |
| 8.1 | First wholesale volume and value for Alaska pollock, 2008-2017 | 169 |
| 8.2 | Alaska pollock first wholesale production volume and value, by product type, 2017 . . . | 170 |
| 8.3 | First wholesale volume and value for Alaska pollock fillets, 2008-2017 | 171 |
| 8.4 | Exports of Alaska pollock fillets to major european markets, 2013-2017. | 173 |
| 8.5 | Russian and Alaska pollock harvests, 2008-2018 and 2019-2020 forecasts | 175 |
| 8.6 | Wholesale production volume and value for Alaska pollock surimi, 2008-2017. | 176 |
| 8.7 | Global surimi production (mt), by source species, 2005-2018 | 179 |
| 8.8 | Wholesale production volume and value/mt for Alaska pollock roe, 2008-2017. | 181 |
| 8.9 | Wholesale production volume and value for H&G Alaska pollock, 2008-2017. | 184 |
| 8.10 | First wholesale volume and value/mt for Alaska Pacific cod, 2008-2017. | 186 |
| 8.11 | Volume and value of Pacific cod wholesale production in Alaska, by product type, 2017. | 186 |
| 8.12 | Global supply of Pacific and Atlantic cod (mt), 1960-2016 | 191 |
| 8.13 | First wholesale volume and value of Alaska sablefish, 2008-2017. | 193 |
| 8.14 | Global supply of Sablefish, in metric tons, 2001-2016. | 195 |

List of Tables

| | | |
|----|---|----|
| 1 | Groundfish catch in the commercial fisheries off Alaska by area and species, 2010-2019 (1,000 metric tons, round weight). | 19 |
| 2 | Groundfish retained catch off Alaska by area, sector, and species, 2015-2019 (1,000 metric tons, round weight). | 20 |
| 2 | Continued | 21 |
| 3 | Groundfish ex-vessel value off Alaska by area, sector, and species, 2015-2019 (\$ millions). | 22 |
| 3 | Continued | 23 |
| 4 | Catch and real ex-vessel value of the commercial fisheries off Alaska by species group and area, 2015-2019; calculations based on COAR (1,000 metric tons and \$ millions, base year = 2019). | 24 |
| 5 | Production and real gross value of groundfish and non-groundfish products in the commercial fisheries off Alaska by species group and area of processing, 2015-2019 (1,000 metric tons product weight and \$ millions, base year = 2019). | 25 |
| 6 | Discards and discard rates for groundfish catch off Alaska by gear, and species, 2015-2019 (1,000 metric tons, round weight). | 26 |
| 7 | Prohibited species catch (PSC) by species, area and gear, 2015-2019 (metric tons (t) or number in 1,000s). | 27 |
| 8 | Percentage of ex-vessel value of the groundfish catch off Alaska by area, residency, and species, 2015-2019; calculations based on COAR. | 28 |
| 9 | Number of vessels that caught groundfish off Alaska by area, vessel category, gear, and target, 2015-2019. | 29 |
| 9 | Continued | 30 |
| 10 | Bering Sea & Aleutian Islands groundfish retained catch by vessel type, gear and species, 2015-2019 (1,000 metric tons, round weight). | 31 |
| 10 | Continued | 32 |
| 10 | Continued | 33 |
| 11 | Bering Sea & Aleutian Islands groundfish retained catch by species, gear, and target fishery, 2018-2019, (1,000 metric tons, round weight). | 34 |
| 11 | Continued | 35 |
| 11 | Continued | 36 |
| 12 | Bering Sea & Aleutian Islands ex-vessel prices in the groundfish fisheries by gear, and species, 2015-2019; calculations based on COAR (\$/lb, round weight). | 37 |
| 12 | Continued | 38 |
| 12 | Continued | 39 |
| 13 | Bering Sea & Aleutian Islands ex-vessel value of the groundfish catch by vessel category, gear, and species, 2015-2019; calculations based on COAR (\$ millions). | 40 |
| 13 | Continued | 41 |
| 13 | Continued | 42 |

| | | |
|----|---|----|
| 14 | Bering Sea & Aleutian Islands vessel and permit counts, ex-vessel value, value per vessel, and percent value of BSAI FMP groundfish and all BSAI fisheries by fleet, 2015-2019; calculations based on COAR (\$ millions). | 43 |
| 14 | Continued | 44 |
| 15 | Bering Sea & Aleutian Islands production of groundfish products by species, 2015-2019, (1,000 metric tons product weight). | 45 |
| 15 | Continued | 46 |
| 15 | Continued | 47 |
| 15 | Continued | 48 |
| 15 | Continued | 49 |
| 16 | Bering Sea & Aleutian Islands gross value of groundfish products by species, 2015-2019, (\$ million). | 50 |
| 16 | Continued | 51 |
| 16 | Continued | 52 |
| 16 | Continued | 53 |
| 16 | Continued | 54 |
| 17 | Bering Sea & Aleutian Islands price per pound of groundfish products by species and processing mode, 2015-2019, (\$/lb). | 55 |
| 17 | Continued | 56 |
| 17 | Continued | 57 |
| 18 | Bering Sea & Aleutian Islands total product value per round metric ton of retained catch by processor type, species, and year, 2015-2019, (\$/mt). | 58 |
| 19 | Bering Sea & Aleutian Islands number of processors, gross product value, value per processor, and percent value of BSAI FMP groundfish of processed groundfish by processor group, 2015-2019 (\$ millions). | 59 |
| 20 | Bering Sea & Aleutian Islands number of vessels, average and median length, and average and median capacity (tonnage) of vessels that caught groundfish by vessel type, and gear, 2015-2019. | 60 |
| 20 | Continued | 61 |
| 21 | Bering Sea & Aleutian Islands number of vessels that caught groundfish by month, vessel type, and gear, 2015-2019. | 62 |
| 22 | Bering Sea & Aleutian Islands catcher vessel (excluding catcher/processors) weeks of fishing groundfish by vessel-length class (feet), gear, and target, 2015-2019. | 63 |
| 23 | Bering Sea & Aleutian Islands catcher/processor vessel weeks of fishing groundfish by vessel-length class (feet), gear, and target, 2015-2019. | 64 |
| 24 | Bering Sea & Aleutian Islands catcher vessel crew weeks in the groundfish fisheries by month, 2015-2019. | 65 |
| 25 | Bering Sea & Aleutian Islands at-sea processor vessel crew weeks in the groundfish fisheries by month, 2015-2019. | 65 |
| 26 | Gulf of Alaska groundfish retained catch by vessel type, gear, and species, 2015-2019 (1,000 metric tons, round weight). | 66 |
| 26 | Continued | 67 |
| 26 | Continued | 68 |
| 27 | Gulf of Alaska groundfish retained catch by species, gear, and target fishery, 2018-2019, (1,000 metric tons, round weight). | 69 |
| 27 | Continued | 70 |
| 27 | Continued | 71 |
| 27 | Continued | 72 |

| | | |
|-----|--|----|
| 28 | Gulf of Alaska ex-vessel prices in the groundfish fisheries by gear, and species, 2015-2019; calculations based on COAR (\$/lb, round weight). | 73 |
| 28 | Continued | 74 |
| 29 | Gulf of Alaska ex-vessel value of the groundfish catch by vessel category, gear, and species, 2015-2019; calculations based on COAR (\$ millions). | 75 |
| 29 | Continued | 76 |
| 29 | Continued | 77 |
| 30 | Gulf of Alaska vessel and permit counts, ex-vessel value, value per vessel, and percent value of GOA FMP groundfish and all GOA fisheries by processor group, 2015-2019; calculations based on COAR (\$ millions). | 78 |
| 31 | Gulf of Alaska production of groundfish products by species, 2015-2019, (1,000 metric tons product weight). | 79 |
| 31 | Continued | 80 |
| 31 | Continued | 81 |
| 32 | Gulf of Alaska gross value of groundfish products by species, 2015-2019, (\$ million). . . | 82 |
| 32 | Continued | 83 |
| 32 | Continued | 84 |
| 33 | Gulf of Alaska price per pound of groundfish products by species, 2015-2019, (\$/lb). . . | 85 |
| 33 | Continued | 86 |
| 34 | Gulf of Alaska total product value per round metric ton of retained catch by species and year, 2015-2019, (\$/mt). | 87 |
| 35 | Gulf of Alaska number of processors, gross product value, value per processor, and percent value of GOA FMP groundfish of processed groundfish by processor group, 2015-2019, (\$ millions). | 88 |
| 36 | Gulf of Alaska number of vessels, average and median length, and average and median capacity (tonnage) of vessels that caught groundfish by vessel type, and gear, 2015-2019. . . | 89 |
| 37 | Gulf of Alaska number of vessels that caught groundfish by month, vessel type, and gear, 2015-2019. | 90 |
| 38 | Gulf of Alaska catcher vessel (excluding catcher/processors) weeks of fishing groundfish by vessel-length class (feet), gear, and target, 2015-2019. | 91 |
| 39 | Gulf of Alaska catcher/processor vessel weeks of fishing groundfish by vessel-length class (feet), gear, and target, 2015-2019. | 92 |
| 40 | Gulf of Alaska catcher vessel crew weeks in the groundfish fisheries by month, 2015-2019. | 93 |
| 41 | Gulf of Alaska at-sea processor vessel crew weeks in the groundfish fisheries by month, 2015-2019. | 93 |
| H1 | Catch (net landed weight) in the commercial Pacific halibut fisheries off Alaska by region, 2015-2019, (hundreds of metric tons). | 94 |
| H2 | Catch (net landed weight) and percent of regional catch in the commercial Pacific halibut fisheries off Alaska by vessel length (feet) and region, 2015-2019, (hundreds of metric tons). . . | 95 |
| H3 | Non-halibut prohibited species catch on commercial Pacific halibut target trips off Alaska by PSC species and area, 2015-2019. | 96 |
| H4A | Ex-vessel value and price in the commercial Pacific halibut fisheries off Alaska by region, 2015-2019, (\$ millions and \$/lb net weight, respectively). | 97 |
| H4B | Ex-vessel value and price in the commercial Pacific halibut fisheries off Alaska by IPHC area, 2015-2019, (\$ millions and \$/lb net weight, respectively). | 97 |
| H5 | Ex-vessel value and average annual revenue per vessel in the commercial Pacific halibut fisheries off Alaska by region and vessel length (feet), 2015-2019, (\$ millions and \$ thousands, respectively). | 98 |

| | | |
|------|--|-----|
| H6 | Ex-vessel value port ranking, annual ex-vessel value, price and percent of statewide value in the commercial Pacific halibut fisheries off Alaska, 2015-2019, (\$ millions and \$/lb net weight). | 99 |
| H7 | First wholesale production volume, value and price in the commercial Pacific halibut fisheries off Alaska by product, 2015-2019, (1000s of metric tons, \$ millions and \$/lb net weight, respectively). | 100 |
| H8 | Number of vessels catching Pacific halibut commercially off Alaska and median vessel length by region and vessel length class, 2015-2019. | 101 |
| H9 | Total vessel days fishing Pacific halibut commercially off Alaska by area, 2015-2019. | 102 |
| H10 | Crew days fishing Pacific halibut commercially off Alaska by month and area, 2015-2019. | 103 |
| 5.1 | Species indices and value share for the BSAI at-sea first-wholesale market 2014-2019. | 117 |
| 5.2 | Product indices and value share for the BSAI at-sea first-wholesale market 2014-2019. | 118 |
| 5.3 | Species indices and value share for the BSAI shoreside first-wholesale market 2014-2019. | 119 |
| 5.4 | Product indices and value share for the BSAI shoreside first-wholesale market 2014-2019. | 120 |
| 5.5 | Species indices and value share for the BSAI shoreside ex-vessel market 2014-2019. | 121 |
| 5.6 | Gear indices and value share for the BSAI shoreside ex-vessel market 2014-2019. | 122 |
| 5.7 | Species indices and value share for the GOA first-wholesale market 2014-2019. | 123 |
| 5.8 | Product indices and value share for the GOA first-wholesale market 2014-2019. | 124 |
| 5.9 | Species indices and value share for the GOA ex-vessel market 2014-2019. | 125 |
| 5.10 | Gear indices and value share for the GOA ex-vessel market 2014-2019. | 126 |
| 7.1 | Groundfish ex-vessel price projection summary | 137 |
| 7.2 | Groundfish wholesale product price projection summary | 138 |
| 7.3 | Projected mean, probability bounds of pollock BSAI trawl ex-vessel prices (US\$/lb) | 140 |
| 7.4 | Projected mean, probability bounds of pollock GOA trawl ex-vessel prices (US\$/lb) | 141 |
| 7.5 | Projected mean, probability bounds of pacific cod BSAI trawl ex-vessel prices (US\$/lb) | 142 |
| 7.6 | Projected mean, probability bounds of pacific cod BSAI fixed gear ex-vessel prices (US\$/lb) | 143 |
| 7.7 | Projected mean, probability bounds of pacific cod GOA trawl ex-vessel prices (US\$/lb) | 144 |
| 7.8 | Projected mean, probability bounds of pacific cod GOA fixed gear ex-vessel prices (US\$/lb) | 145 |
| 7.9 | Projected mean, probability bounds of pacific cod GOA fixed gear ex-vessel prices (US\$/lb) | 146 |
| 7.10 | Projected mean, probability bounds of sablefish GOA fixed gear ex-vessel prices (US\$/lb) | 147 |
| 7.11 | Projected mean, probability bounds of pollock surimi wholesale prices (US\$/lb) | 148 |
| 7.12 | Projected mean, probability bounds of pollock fillet wholesale prices (US\$/lb) | 149 |
| 7.13 | Projected mean, probability bounds of pollock deep-skin fillet wholesale prices (US\$/lb) | 150 |
| 7.14 | Projected mean, probability bounds of pollock roe wholesale prices (US\$/lb) | 151 |
| 7.15 | Projected mean, probability bounds of pollock head and gut wholesale prices (US\$/lb) | 152 |
| 7.16 | Projected mean, probability bounds of pacific cod head and gut wholesale prices (US\$/lb) | 153 |
| 7.17 | Projected mean, probability bounds of pacific cod fillet wholesale prices (US\$/lb) | 154 |
| 7.18 | Projected mean, probability bounds of sablefish head and gut ex-vessel prices (US\$/lb) | 155 |
| 7.19 | Projected mean, probability bounds of atka mackerel head and gut wholesale prices (US\$/lb) | 156 |
| 7.20 | Projected mean, probability bounds of yellowfin (BSAI) head and gut wholesale prices (US\$/lb) | 157 |
| 7.21 | Projected mean, probability bounds of rock sole (BSAI) head and gut with roe wholesale prices (US\$/lb) | 158 |
| 7.22 | Projected mean, probability bounds of rock sole (BSAI) head and gut wholesale prices (US\$/lb) | 159 |

| | | |
|------|--|-----|
| 7.23 | Projected mean, probability bounds of arrowtooth head and gut wholesale prices (US\$/lb) | 160 |
| 7.24 | Projected mean, probability bounds of rockfish head and gut wholesale prices (US\$/lb) | 161 |
| 8.1 | Global whitefish production, in metric tons, 2016 | 166 |
| 8.2 | Global production of snappers/rockfish and sablefish/toothfish, in metric tons, 2016 . . | 167 |
| 8.3 | Alaska groundfish production and market summary, 2017. | 168 |
| 8.4 | Summary profile of Alaska pollock wholesale production and markets, 2017. | 169 |
| 8.5 | Sales of Alaska pollock fillets to key markets (mt), 2013-2017 | 172 |
| 8.6 | Estimated U.S. pollock fillet market supply (mt), 2013-2017 | 174 |
| 8.7 | U.S. exports of Alaska pollock surimi by country (mt), 2013-2017 | 177 |
| 8.8 | Japan surimi imports from major producers (mt), 2013-2017 | 178 |
| 8.9 | Exports of Alaska pollock roe by country (mt), 2013-2017 | 182 |
| 8.10 | Japan pollock roe imports (mt), 2013-2017 | 182 |
| 8.11 | South Korean pollock roe trade (mt), 2013-2017 | 183 |
| 8.12 | Alaska pollock H&G exports (mt), by country, 2015-2017 | 184 |
| 8.13 | China imports of frozen H&G pollock by country (mt), 2015-2017 | 184 |
| 8.14 | Summary profile of Alaska Pacific cod wholesale production and markets, 2017 | 185 |
| 8.15 | Sales of H&G Alaska Pacific cod to key markets (mt), 2013-2017 | 188 |
| 8.16 | Sales of Alaska Pacific cod fillets to key markets (mt), 2013-2017 | 188 |
| 8.17 | Total cod imports into U.S. market, volume and value, 2013-2017 | 189 |
| 8.18 | Primary export markets for Chinese twice-frozen cod fillets (mt), 2013-2017. | 189 |
| 8.19 | Alaska Pacific cod export volume to major Asian markets (mt), 2013-2017. | 190 |
| 8.20 | European imports of cod fillets from major producers (mt), 2015-2017. | 190 |
| 8.21 | Summary profile of sablefish wholesale production and markets, 2017 | 191 |
| 8.22 | Estimated export volume and value of Alaska-harvested sablefish, 2013-2017. | 193 |
| 8.23 | Japan frozen H&G sablefish imports, by major trade partner, 2012-2017. | 194 |
| 8.24 | Estimated U.S. sablefish market size, in metric tons, 2013-2017 | 194 |
| 8.25 | Summary profile of yellowfin sole wholesale production and markets, 2017. | 196 |
| 8.26 | Summary profile of rock sole wholesale production and markets, 2017 | 196 |
| 8.27 | Summary profile of Atka mackerel wholesale production and markets, 2017. | 197 |
| 8.28 | Summary profile of Pacific ocean perch wholesale production and markets, 2017. . . . | 197 |

1. EXECUTIVE SUMMARY

This preliminary draft of the Economic SAFE report contains detailed information about economic aspects of the groundfish fisheries, including figures and tables, economic performance indices. The final draft of this report will also include 2020 product price and ex-vessel price projections, year-to-date information on volume and value, an Amendment 80 fishery economic data report (EDR) summary, an Amendment 91 fishery economic data report (EDR), a Gulf Trawl EDR summary, market profiles for the most commercially valuable species, a summary of the relevant research being undertaken by the Economic and Social Sciences Research Program (ESSRP) at the Alaska Fisheries Science Center (AFSC), and a list of recent publications by ESSRP analysts. Data tables are organized into four sections: (1) All Alaska, (2) BSAI, (3) GOA, and (4) Pacific halibut. The figures and tables in the report provide estimates of total groundfish catch, groundfish discards and discard rates, prohibited species catch (PSC) and PSC rates, the ex-vessel value of the groundfish catch, the ex-vessel value of the catch in other Alaska fisheries, the gross product value of the resulting groundfish seafood products, the number and sizes of vessels that participated in the groundfish fisheries off Alaska, vessel activity, and employment on at-sea processors. Generally, the data presented in this report cover 2014-2019, but limited catch and ex-vessel value data are reported for earlier years to illustrate the rapid development of the domestic groundfish fishery in the 1980s and to provide a more complete historical perspective on catch. The data behind the tables from this and past Economic SAFE reports will be available online at: <https://reports.psmfc.org/akfin> and <https://pserv.psmfc.org/PSESV-2/>.

The commercial FMP groundfish fisheries off Alaska had a total catch of 2.2 million metric tons (mt) in 2019 (including catch in federal and state waters) (Fig. 3.1 and Table 1), a decrease of 1.8% from 2018. Groundfish accounted for 83% of Alaska's 2019 total catch (Table 4). Total catch in 2019 increased for sablefish, flatfish, and rockfish. Total catch decreased for Alaska pollock, Pacific cod, and Atka mackerel.

The aggregate ex-vessel value of the FMP groundfish fisheries off Alaska was \$981 million, which was 50% of the ex-vessel value of all commercial fisheries off Alaska in 2019 (Table 4).¹ After adjustment for inflation, the real ex-vessel value of FMP groundfish decreased \$30 million in 2019 was also due to an aggregate real ex-vessel price decrease of 1.7% to \$0.21 per pound (Table 4). Nominal pollock ex-vessel prices increased 7% to \$0.16 per pound in the Bering Sea and Aleutian Islands (BSAI), and 12% to \$0.14 per pound in the Gulf of Alaska (GOA) (Tables 12 and 28). Pacific cod nominal ex-vessel prices increased 5% to \$0.42 per pound in the BSAI, and 8% to \$0.49 per pound in the GOA. Among the other species that are the focus of the shoreside ex-vessel fisheries: The GOA flatfish ex-vessel price fell 22%, GOA rockfish prices were unchanged, GOA Pacific cod prices rose 8%, BSAI Pacific cod prices rose 5%, and GOA sablefish prices fell 27% (in nominal terms). For Alaska FMP groundfish in aggregate the change in catch was larger than the change in price (Tables 5.6 and 5.10). For other fisheries in Alaska, halibut, salmon, herring, and shellfish ex-vessel revenues increased (Table 4).

¹The data required to estimate net benefits to either the participants in fisheries or the Nation, such as cost or quota value (where applicable) data, are not available. Unless otherwise noted 'value' should be interpreted as gross revenue.

The gross value of the 2019 groundfish catch after primary processing (first-wholesale) was \$2.5 billion (Table 5), a decrease of 3% in real terms from 2018. This change was the combined effect of a 2% decrease in the real aggregate 2019 first-wholesale price to \$1.2 per pound while aggregate production volumes decreased 0.6% to 931.3 thousand mt (Table 5). In the BSAI, aggregate first-wholesale value was stable and value was increasing for pollock and most flatfish except for yellowfin and rock sole. Value was decreasing for Pacific cod, Pacific ocean perch, and sablefish (Table 16 and 17). In the GOA aggregate first-wholesale value decreased (16%) with decreases in value for pollock, Pacific ocean perch, and sablefish while arrowtooth and Pacific cod value increased (Table 32).

The first-wholesale value of Alaska's FMP groundfish fisheries accounted for 53% of Alaska's total first-wholesale value from commercial fisheries (Table 5). First-wholesale value of Alaska's fisheries products other than FMP groundfish fisheries totaled \$2.18 billion, most of which (\$1.7 billion) came from Pacific salmon. Pacific salmon value increased 9.3%, in part, because of the typical cycle in salmon returns and production, though year-over-year prices were down. Pacific halibut fisheries, which are concentrated in the Gulf of Alaska, saw a 2.9% increase in value in 2019 to \$109 million in 2019.

The groundfish fisheries off Alaska are an important segment of the U.S. fishing industry. In 2018, it accounted for 50% of the weight of total U.S. domestic landings and 18% of the ex-vessel value of total U.S. domestic landings (Fisheries of the United States, 2018). Alaska fisheries as a whole (including salmon, halibut, herring, and shellfish) accounted for 57% of the weight of total U.S. domestic landings and 35% of the ex-vessel value of total U.S. domestic landings.

NOAA Fisheries collects only limited data on employment in the fisheries off Alaska. The most direct measure available is the number of 'crew weeks' on at-sea processing vessels and catcher vessels of FMP groundfish. These data indicate that in 2019 crew weeks for both sectors totaled 150,169 with the majority of them (122,248) occurring in the BSAI groundfish fishery (Tables 24, 40, 25, and 41). In the BSAI, the months with the highest employment correspond with peak of the pollock seasons in February-March and July-September. In the Gulf of Alaska, crew weeks peak February-May with the catcher vessel hook and line fisheries targeting sablefish and Pacific cod. Relative to 2018, annual crew weeks in Alaska decreased in 2019 by 1.2%.

1.1. Report Card Metrics for the Alaska Commercial Groundfish Fisheries off Alaska 1993-2019

The purpose of the report card metrics is to give a broad overview of the economic health of Alaska's FMP groundfish fisheries (Figure 1.1). The metrics cover the years 1993-2019 to help elucidate trends and provide historical context to the current state of the fishing industry. In general, these metrics focus on FMP groundfish fisheries, which are also the focus of this economic status report. As a result, halibut and salmon are not well represented by these metrics (except that the share of shoreside value for the top 5 ports does include salmon and halibut). The economic report card includes 9 items²:

²Metrics 1, 2, and 7 are adjusted for inflation using the GDP chain-type price index. For Metric 6 ex-vessel revenues are deflated using the Personal Consumption Expenditures chain-type price index. See the Overview Section 2.2.7 for references.

- 1) Real first-wholesale revenue³ index which measures changes in the first-wholesale revenue produced by all FMP groundfish species in Alaska using 2019 as the base year (value=100).
- 2) Real first-wholesale price index, which measures changes in first wholesale prices produced from all FMP groundfish species in Alaska using 2019 as the base year (value=100).
- 3) Production volume divided by total catch, where total catch is inclusive of discards and PSC. This metric approximates a recovery rate of product relative to total extractions across all FMP groundfish species.
- 4) The effective global share of Alaska pollock and cod catch, defined as the average shares of global catch volume weighted by Alaska first-wholesale revenue shares. This metric demonstrates how large the Alaska pollock and cod fisheries are relative to the global supply of these species which provides information as to the potential influence of changes in Alaska catches on global prices for these species.
- 5) Real effective exchange rate index, which is an average of foreign currencies to U.S. dollar exchange rate weighted by fisheries exports to each country.⁴ This metric provides information about how exchange rates are impacting Alaska FMP groundfish producers across all of their export partners.
- 6) Ratio of ex-vessel over first-wholesale revenues. This revenue share is a function of a number of different factors including the value added from processing, bargaining power, global prices, and processing and harvesting costs.
- 7) Real first wholesale revenue per fishing week, where fishing weeks are defined as the number of vessels active in each week of the year, and is a productivity-related metric that can be thought of as revenue per unit effort.
- 8) Alaska resident share of FMP groundfish shoreside ex-vessel value, where residency is determined by the owner address of delivering vessels. This metric measures the share of gross FMP groundfish revenues staying in Alaska versus those going to vessel owners in other states.
- 9) Share of shoreside all Alaska fisheries ex-vessel value for the top 5 ports, which is not limited to just FMP groundfish to provide a more comprehensive account of community revenues. This metric measures the degree of concentration of landings across Alaska communities.

Real First wholesale value remains relatively high due to catch and increases in production per-unit-catch (panels 1 and 3). In 2019 catch and production levels have been strong for pollock, and rockfish, while sablefish production has improved. Flatfish and cod production levels have tapered in recent years due to reductions in particular regions and/or species, though levels remain good in aggregate relative to historic levels. While real prices remain low they improved in 2017 and 2018 and remained within one standard deviation of the historical mean in 2019 (panel 2). Globally, Alaska has a significant effective share of pollock and cod at approximately 40%, which has remained stable since 2014. The effective real exchange rate index increased in 2019 putting downward pressure on Alaska fish product export prices. The ratio of ex-vessel to wholesale revenues dropped significantly in 2016 as a result of low ex-vessel prices, particularly for pollock, but rebounded somewhat through 2017-2018 and remained stable in 2019 with stronger ex-vessel prices as wholesale prices for pollock

³The revenue from the sale of fish products after primary processing.

⁴Increases in this index indicate that exports are more expensive for foreign buyers which puts downward pressure on prices received by Alaska producers.

and cod have improved (panel 6). Revenue per-unit-effort (measured by fishing weeks) increased 2018 and remained high through 2019 as catcher-vessel weeks were reduced, particularly in GOA as a result of reduced opportunities for cod (panel 7). The share of shoreside revenue to AK residents is higher relative to the mid-2000s (panel 8), due to Alaska resident's share of revenue in Pacific cod, which increased from approximately 40% in 2003-2008 to approximately 53% in 2017 but dropped to 47% in 2019; sablefish, which increased from 53% in 2003-2008 to approximately 65% in 2019; and pollock which increased from 5% in 2003-2008 to 9% in 2019. Roughly 55% of the shoreside revenues are concentrated in a the top 5 key ports which in 2019 were Akutan, Cordova, Dutch Harbor, Kodiak, and Naknek (panel 9). This is up from 2010 when reductions in the pollock and cod TACs reduced revenues in a couple high value ports, which focus on catches of these species.

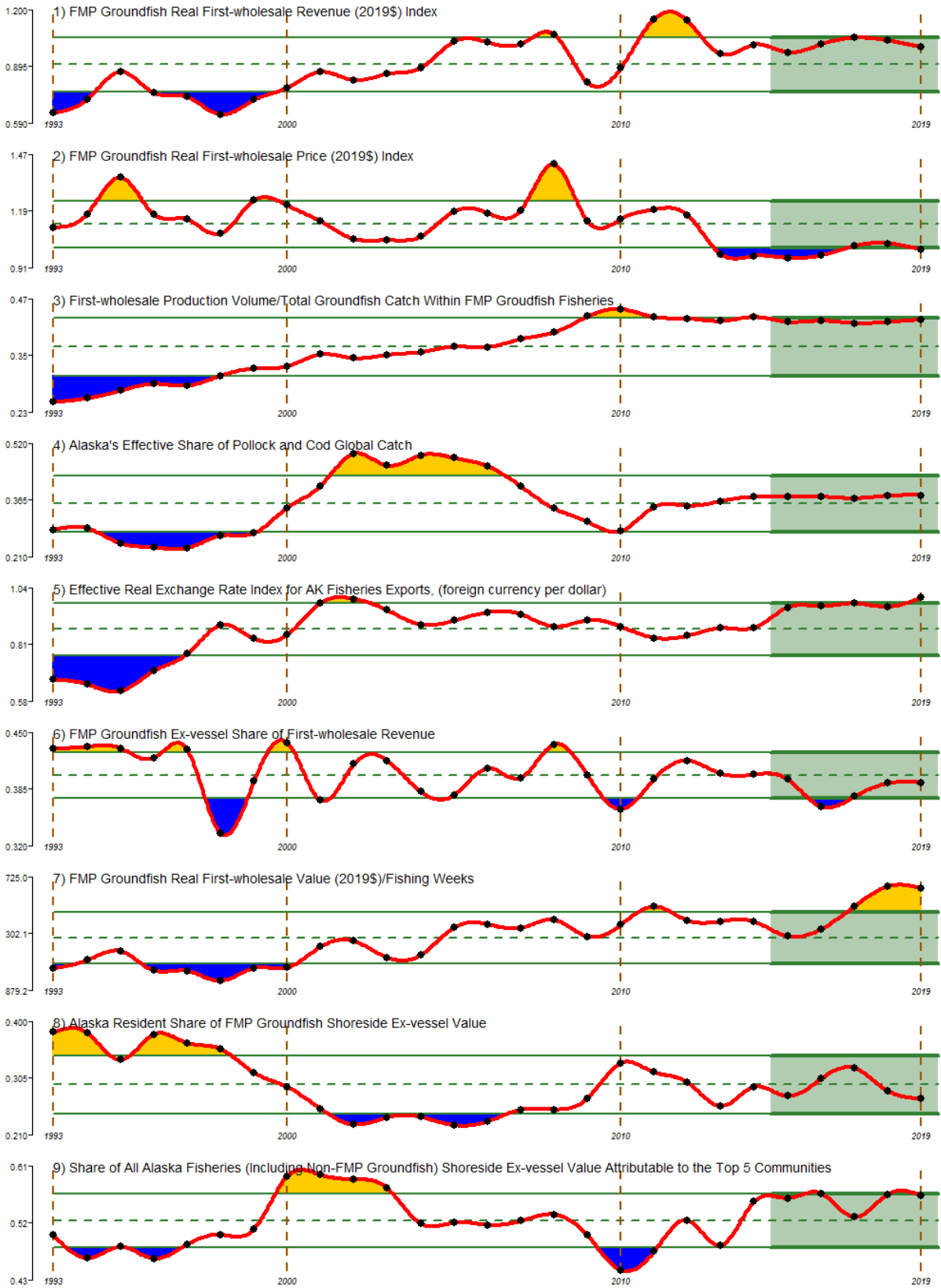


Figure 1.1: Economic report card metrics.

2. OVERVIEW OF ECONOMIC STATUS REPORT, 2019

2.1. Introduction

This report presents the economic status of groundfish fisheries off Alaska in terms of economic activity and outputs using estimates of catch, discards, prohibited-species catch (PSC), ex-vessel prices and value (i.e., revenue), effort (as measured by the size and level of activity of the groundfish fleet), and the first wholesale production volume and gross value of (i.e., F.O.B. Alaska revenue from) processed products.¹ The catch, ex-vessel value, fleet size and activity data reported here reflect the fishing industry activities that are accounted for in the groundfish landings and production reports, North Pacific groundfish and halibut observer data, and the State of Alaska Commercial Operator’s Annual Reports. Catch data in this report are sourced from the NMFS Alaska Regional Office (AKRO) catch-accounting system (CAS), which is used for in-season monitoring groundfish and PSC quotas. The data descriptions, qualifications, and limitations noted in this overview of the fisheries and the footnotes to the tables are critical to understanding the information in this report. This report updates last year’s report (Fissel *et al.* 2019) and is intended to serve as a reference document for those involved in making decisions with respect to conservation, management, and use of Gulf of Alaska (GOA) and Bering Sea and Aleutian Islands (BSAI) groundfish fishery resources.

In addition to catch that is counted against a federal Total Allowable Catch (TAC) quota (i.e., managed under a federal Fishery Management Plan (FMP)), estimates provided in some of the following tables may include catch from other Alaska groundfish fisheries (as indicated by the footnotes). The distinction between catch managed under a federal FMP and catch managed by the State of Alaska is not merely a geographical distinction between catch occurring in the U.S. Exclusive Economic Zone (EEZ) and catch occurring in Alaska state waters (3-mile limit). The State of Alaska maintains authority over some rockfish fisheries in the EEZ of the GOA, for example, and parallel fisheries occurring within state waters are managed under federal FMPs. It is not always possible, depending on the data source(s) from which a particular estimate is derived, to definitively identify a unit of catch, or associated units of measure, such as revenue or price, as being part of a federal FMP or otherwise. Users are encouraged to consult table footnotes for clarification on coverage in individual tables with respect to federally-managed and state-managed catch. Additionally, unless explicitly indicated, phrases such as “groundfish fisheries off Alaska” or “Alaska groundfish”, as used in this report, should not be construed to precisely include or exclude any category of state or federally managed fishery or to refer to any specific geographic area. These and similar phrases may describe groundfish from both Alaska state waters and the federal EEZ off Alaska, groundfish managed only under federal FMPs, or managed under the authority of both NMFS and the state of Alaska.

The BSAI and GOA groundfish fisheries are widely considered to be among the best managed fisheries in the world. These fisheries produce high levels of catch, ex-vessel revenue, processed product revenue, exports, employment, and other measures of economic activity while maintaining ecological sustainability of the fish stocks. However, the data required to estimate the success of these policies with respect to net benefits to either the participants in these fisheries or the Nation, such

¹F.O.B. refers to the value (or price) excluding transportation costs. The acronym, F.O.B. stands for “Free On Board”.

as cost or quota value data (where applicable), are not available for many of the fisheries. Fishery economists began discussing the potential for rent dissipation in fisheries managed with open-access catch policies long ago (Scott 1954, Gordon 1955). The North Pacific region has gradually moved away from such management, as discussed by Holland (2000), and instituted catch share programs in many of its fisheries. Seven of the seventeen catch-share programs currently in operation throughout the U.S. operate in the North Pacific, accounting for approximately 75% of Alaska’s groundfish landings. By allocating the catch to individuals, cooperatives, communities, or other entities, catch share programs are intended to promote sustainability and increase economic benefits. Research on North Pacific fisheries has examined some of these issues after program implementation (e.g., Felthoven 2002, Homans and Wilen 2005, Wilen and Richardson 2008, Abbott et al. 2010, Fell and Haynie 2011, Torres and Felthoven 2014, Abbott et al. 2015).

There is considerable uncertainty concerning the future conditions of stocks, the resulting quotas, and potential changes to the fishery management regimes for the BSAI and GOA groundfish fisheries. The management tools used to allocate the catch between various user groups can significantly affect the economic health of the fishery as a whole or segments of the fishery. Changes in fishery management measures are expected to result from continued concerns with: 1) the catch of prohibited species; 2) the discard and utilization of groundfish catch; 3) the effects of the groundfish fisheries on marine mammals and sea birds; 4) other effects of the groundfish fisheries on the ecosystem and habitat; 5) the allocations of groundfish quotas among user groups; 6) maintaining sustainable fisheries and fishing communities that allow for new entrants into the fisheries; and 7) the response of the fisheries and ecosystem to climatic trends.

The remainder of this report is structured as follows: Section 2.2 gives a verbal description and important information for understanding the economic data tables in Section 4. Section 5 examines the economic performance of the North Pacific groundfish fisheries through market indices.

2.2. Description of the Economic Data Tables

2.2.1 Groundfish and Prohibited Species Catch Data Description

Data Sources

Total catch estimates in the groundfish fisheries off Alaska are generated by NMFS from data collected through an extensive fishery observer program and from information provided through required industry reports of harvest and at-sea discards. The North Pacific Observer Program (Observer Program), based at the NMFS Alaska Fisheries Science Center (AFSC), has had a vital role in the management of North Pacific groundfish fisheries since the late 1980s. Observer data are collected by NMFS-trained observers and provide scientific information for managing the groundfish fisheries and minimizing bycatch. Industry-reported data consists of catch and processed product amounts that are electronically recorded and submitted to NMFS through the Interagency Electronic Reporting System, known as eLandings. Observer information and industry reports are integrated into a NMFS application called the Alaska Catch Accounting System (CAS), which is used directly in managing fisheries.

The primary purpose of the CAS is to provide estimates of total catch for FMP species (including prohibited species) in the groundfish and halibut fisheries and allow the in-season monitoring of catch against the TACs and PSC limits. The harvest of groundfish in Federal waters are governed under

fishery management plans (FMPs) that are specific to the Bering Sea and Aleutian Islands (BSAI) and Gulf of Alaska (GOA) regions. The groundfish TACs are established and monitored in terms of total catch, which is the sum of retained and discarded catch. In addition, the FMPs describe policy for setting bycatch limits for some species, such as halibut and salmon, whose retention is prohibited in the groundfish fisheries; bycatch of these species is referred to as Prohibited Species Catch (PSC).

In the CAS, at-sea sample and census data collected by observers are used to create discard and PSC rates (a ratio of the estimated discarded catch to the estimated total catch in sampled hauls). For trips that are unobserved, the discard and PSC rates are applied to industry-supplied landings of retained catch. Expanding on the observer data that are available, the extrapolation from observed vessels to unobserved vessels is based on varying levels of aggregated data. Data are matched based on processing sector (e.g., catcher/processor or catcher vessel), week, target fishery, gear, and federal reporting area. Further detail on the estimation procedure is available in Cahalan et al. (2014). With the exception of Pacific halibut PSC, all estimated at-sea discard is assumed to have 100% mortality. Halibut mortality rates are updated every three years based on the estimated condition of halibut sampled by observers (Williams 2012). These rates are applied to the total estimated halibut discards (for a gear type, FMP area (GOA or BSAI), fishery, and year).

Groundfish Catch Tables

The catch presented throughout these tables is total catch which includes retained and discarded catch. Catch data are sourced from the NMFS Alaska Region Office Catch Accounting System (CAS). Catch for all Alaska including state and federal catches is displayed in Table 1. Retained catch for just FMP-managed groundfish are provided in Table 4 presents catch data by area (BSAI and GOA), gear (trawl, hook and line—used in this report to include longlines and jigs—and pot gear), vessel type (catcher vessels and catcher/processor vessels), and species (complex). Tables 10 and 26 provide additional information for the BSAI and GOA, respectively, with aggregation of gear types and species specific catch data for flatfish and rockfish. Tables 11 and 27 provide estimates of total catch by species, gear, and target species for the BSAI and GOA, respectively. In general, the species or species group accounting for the largest proportion of retained catch on the trip or haul is considered the target species, with two exceptions. A target of pelagic pollock is assigned only if 95% or more of the total catch is pollock. In the BSAI, if flatfish species (flathead, rock, and yellowfin sole, and other flatfish) represent the largest amount of retained catch, then a target of yellowfin sole is assigned if this species represents at least 70% of the combined flatfish retained catch; otherwise, the flatfish species accounting for the greatest amount of retained flatfish catch is assigned as the target. Beginning in 2011, Kamchatka flounder was broken out from arrowtooth flounder in the BSAI. As such, the “other flatfish”, and/or arrowtooth flounder target categories may not be directly comparable between 2011 and prior years in the historical catch data available online.

Groundfish Discards and Discard Rates

Discarded catch is the unretained catch of species that a vessel is legally able to target and retain. Discards are included in a vessel’s total catch. Discards can occur for various reasons and in a variety of ways such as discarding of non-targets species, fish falling off of processing conveyor belts, dumping of large portions of nets before bringing them on-board the vessel, dumping fish from the decks, size sorting by crewmen, and quality-control. In each target fishery the discard rates can be high for non-target species. For the most common species (e.g. pollock and cod) retention requirements can reduce the amount of discards for these species. The discard rate is the percent of

total catch of a species that is discarded. Details on discard estimation can be found in Cahalan *et al.* (2014). The discards in the groundfish fisheries have received significant management attention by NMFS, the Council, Congress, and the public at large. Table 6 presents CAS estimates of discarded groundfish catch and discard rates (calculated as the percent of total catch that is discarded) by gear, area, and species for years 2015-2019.

Prohibited-Species Catch

Prohibited-species catch (PSC) is the catch of species that a vessel is prohibited from targeting and retaining due to their economic value to users outside the FMP groundfish fisheries. These species include Pacific halibut, king and tanner crab (*Chionoecetes*, *Lithodes*, and *Paralithodes spp.*), Pacific salmon (*Oncorhynchus spp.*), and Pacific herring (*Clupea pallasii*). Monitoring and minimizing the amount PSC in the Alaska groundfish fisheries has historically been an issue that has received significant management attention. The retention of these species was prohibited first in the foreign groundfish fisheries to ensure that groundfish fishermen had no incentive to target these species. Estimates of PSC for 2015-2019 are summarized by area and gear in Table 7.

The at-sea observer program was developed for the foreign fleets and then extended to the domestic fishery. The observer program, managed by the Fisheries Monitoring and Analysis Division (FMA) of the Alaska Fisheries Science Center, resulted in fundamental changes in the nature of the PSC problem. First, by providing estimates of total groundfish catch and non-groundfish PSC by species, it reduced the concern that total fishing mortality was being vastly underestimated due to fish that were discarded at sea. Second, it made it possible to establish, monitor, and enforce the groundfish quotas in terms of total catch as opposed to only retained catch. Third, it made it possible to implement and enforce PSC quotas for the non-groundfish species that by regulation had to be discarded at sea. Finally, it provided extensive information that managers and the industry could use to assess methods to reduce PSC and PSC mortality. In summary, the observer program provided fishery managers with the information and tools necessary to prevent PSC from adversely affecting the stocks of the PSC species. An example of how this program is being used is the Bering Sea pollock fishery, which became completely observed in 2011. As a result, salmon PSC estimates in the Bering Sea are a census rather than a sample and since 2011, there has been a fixed “hard cap” in the fishery.² The information from the observer program helps identify the types of information and management measures that are required to reduce PSC to the extent practicable, as is required by the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

2.2.2 Ex-Vessel Prices and Value

The ex-vessel market is the transaction of catch delivered by vessels to processors. In general, ex-vessel prices are derived from Commercial Operator Annual Report (COAR) buying reports. Some catcher-vessels minimally process (e.g., head-and-gut) the catch prior to delivery to the processor. The value of this on-board processing is discounted from the ex-vessel price so that it represents the round-weight (unprocessed) prices of the retained catch. Ex-vessel value is calculated by multiplying ex-vessel prices by retained catch. For the at-sea sector much of catch is both caught and processed for first-wholesale distribution by a single entity and as such a true “ex-vessel” market does not exist. For national accounting purposes the “ex-vessel” value of the at-sea sector

²These rules for salmon bycatch management were put in place through Amendment 91 to the BSAI FMP. For details see <https://www.federalregister.gov/documents/2010/08/30/2010-20618/fisheries-of-the-exclusive-economic-zone-off-alaska-chinook-salmon-bycatch-management-in-the-bering>

are calculated by applying COAR buying prices for the corresponding species (group), region, and gear-type of the retained catch. For a subset of fisheries that are prosecuted primarily by the at-sea catcher/processor fleet, and for which COAR buying data are sparse, we impute prices as a percentage (40%) of the estimated wholesale value per round weight. This percentage reflects the long-term average of the ratio ex-vessel prices to head-and-gut (H&G) processed-product prices for species (primarily Pacific cod) that are well represented in COAR buying and production reports. Ex-vessel prices and value include post-season adjustments.

Tables 4 contains data on the real ex-vessel catch of groundfish and non-groundfish species in Alaska, adjusted to 2019 dollars by applying the Personal Consumption Expenditure Index (<https://research.stlouisfed.org/fred2/series/PCEPI>) to account for effects of inflation on fishermen’s revenue. Table 8 provides estimates of ex-vessel value by residency (Alaska compared to the rest of the U.S., labeled ‘Other’) of primary vessel owners, area, and species. Residency of primary vessel owners are determined from the CAS combined with State of Alaska groundfish fish ticket data and vessel registration data, the latter of which includes the stated residency of the primary vessel owner. Residents of Alaska and of other states, particularly Washington and Oregon, are active participants in the BSAI and GOA groundfish fisheries. For the BSAI and GOA combined, 77% of the 2019 ex-vessel value was accounted for by vessels with primary owners who indicated that they were not residents of Alaska.

Tables 12 and 28 contains estimated ex-vessel prices that are used with estimates of retained catch to calculate ex-vessel values (gross revenues) for the BSAI and GOA, respectively. Prices in these tables may include data from both federally-managed and state-managed fisheries. Estimates of ex-vessel value by area, gear, type of vessel, and species are presented in Tables 13 and 29 for the BSAI and GOA, respectively. Table 14 presents estimates of ex-vessel value of catch and value per vessel, vessel and permit counts, in the BSAI and the percent value of BSAI FMP groundfish and all BSAI fisheries by processor group. Table 14 provides these same data for the GOA.

2.2.3 First Wholesale Production, Prices and Value

The first wholesale market is the first sale of fisheries products after initial processing by a commercial processor with a Federal Processor Permit (FPP).³ Groundfish first wholesale production data are sourced from at-sea and shoreside groundfish production reports. Product pricing and value reflect COAR product report price data appended to these production data per the AKFIN product pricing index. While groundfish production reports are a federal reporting requirement, there is typically no distinction made in this reporting between product derived from federally-managed catch and product derived from state-managed catch. Likewise, while COAR production reports include the area of processing, these data are insufficient for identifying the fishery inputs for units of finished production. As such, these tables reflect production volume and pricing from federal and some state-managed fisheries. Wholesale value and prices are given as F.O.B. (Free On Board) Alaska, indicating that transportation costs are not included in values and prices.

Table 5 reports estimates of the weight and first wholesale value of processed products from catch in the groundfish and non-groundfish commercial fisheries of Alaska. Estimates of first wholesale production weight of the processed products sourced from catch of groundfish are presented by species, product form, sector, and type of processor in Table 15 for the BSAI and Table 31 for

³An FPP is required for all processors receiving and/or processing groundfish harvested in Federal waters.

the GOA. First-wholesale value (gross revenue) is presented in Tables 16 and 32 for the BSAI and GOA, respectively. Product price-per-pound estimates are presented in Tables 17 and 33, and estimates of total first wholesale product value per round metric ton of retained catch are reported in Table 18 and for the BSAI and GOA, respectively. For these tables we source the round weight of retained catch from CAS data rather than using product recovery rates to derive round weights from production data.

Tables 19 and 35 present number of processors, gross product value and value per processor, and percent value of BSAI FMP groundfish of processed groundfish by processing fleet for the BSAI and GOA, respectively. Data in these tables are summarized from COAR product reporting, and no distinction is made between state-managed and federally-managed groundfish sources of production.

2.2.4 Effort (Fleet Size, Weeks of Fishing, Crew Weeks)

Data on measures of fishing capacity and effort in federally-managed Alaska groundfish fisheries, including fleet size, duration of fishing, and levels of harvesting and processing employment are sourced from catch accounting data, ADF&G groundfish fish tickets, North Pacific groundfish observer data, and at-sea groundfish production reports.

The numbers of vessels that landed groundfish are depicted in Fig. 3.6 by gear type. Vessel participation by area, vessel type, and target are shown in Tables 9. Number of vessels, average and median length, and average and median capacity (registered net tonnage) of vessels by vessel type, and gear are shown in Tables 20 and 36.

Tables 22 and 38 provide estimates of vessel weeks for catcher vessels in the BSAI and GOA, respectively, stratified by length class, area, gear, and target fishery. Tables 23 and 39 provide the same stratification of vessel weeks for catcher/processors in the BSAI and GOA, respectively. Vessel weeks are apportioned by catch volume in cases where a vessel is identified with activity in multiple gears, areas, and/or targets in a given week.

Catcher vessel crew weeks are sourced from ADF&G fish tickets/eLandings, which include data on the number of licensed crew working aboard vessels by month and area shown in Tables 24 and 40, in the BSAI and GOA, respectively. At-sea production reports provide these information for motherships and catcher/processors shown in Tables 25 and 41 for the BSAI and GOA, respectively. A single crew week represents one crew member aboard one vessel for a week. Crew weeks are apportioned by catch volume in cases where a vessel is identified with activity in multiple areas in a given week. These data do not include employment levels in the shoreside and inshore processing sectors.

2.2.5 Economic Data Tables for the Commercial Pacific Halibut Fishery

Pacific halibut fisheries in Alaska is managed jointly by the NMFS, the NPFMC, the state of Alaska and the International Pacific Halibut Commission (IPHC). The IPHC was established through a Convention between the United States and Canada to research the biology of Pacific halibut and conduct stock assessments which are used to establish catch levels in each country.⁴ Under the authority of NMFS, the NPFMC allocates the halibut resource among the user groups (commercial,

⁴www.iphc.int/home.html.

recreational, and subsistence fisheries) and sets bycatch limits for fisheries with incidental halibut catch, while NMFS enforces U.S. regulations. The state of Alaska permits fishermen and assists in monitoring and reporting, particularly of recreational and subsistence harvests.⁵ Since 1995 the commercial halibut fisheries off Alaska have been managed as a catch share fishery through the Individual Fisheries Quota (IFQ) program and the Community Development Quota (CDQ) program.

Prior to 2014 this report included only limited data on halibut because it is not an FMP managed species and the Alaska Fisheries Science Center does not conduct the Pacific halibut stock assessment. Beginning in 2014, economic data tables for Pacific halibut are included in this report to provide management and the public a consolidated source for economic information of fisheries activity for species harvested in the federal waters off Alaska. Economic data tables in Section 4 for Pacific halibut are provided separate from the FMP managed groundfish because of its unique management status. Moreover, halibut management units (e.g., areas) do not match the definitions used for FMP Groundfish making it infeasible to append halibut data directly to the economic data tables for the FMP groundfish.

The economic data in Tables H1-H10 are only for the commercial fishing sector. Tables H1-H2 display Pacific halibut commercial landings (net weight retained catch). Table H3 displays prohibited species catch (of non-halibut species) on commercial trips where halibut was the target species. Ex-vessel value and price are displayed by various management areas, vessel length and ports in Tables H4A-H6. First-wholesale production, value and prices by product type is displayed in Table H7. Fishing effort as measured by: vessel counts are displayed in Tables H8; days fishing are displayed in Table H9; crew weeks are displayed in Table H10.

2.2.6 Description of the Category “Other” in Data Tables

- Table 5: “Other” includes lingcod, non-crab shellfish (mussel, clam, scallop, shrimp), and various freshwater and anadromous finfish species other than federally managed groundfish, salmon, halibut, and herring (e.g., whitefish, trout, Arctic char).
- Tables 11, 27: “Other flatfish” in the BSAI include Alaska Plaice and species within the BSAI other flatfish management complex, including starry flounder and dover, rex, butter, English, petrale, and sand sole.
- Table 7: “Other salmon” are non-Chinook salmon species (sockeye, coho, pink, chum). “Other King crab” are blue, golden (brown), and scarlet king crab species. “Other Tanner crab” are snow, grooved, and triangle Tanner crab species.
- Tables 15, 16, 17, 31, 32, 33: “Other fillets” for pollock include fillets with skin and ribs; fillets with skin, no ribs; fillets with ribs, no skin; and skinless/boneless fillets. “Flat Other” includes BSAI Alaska Plaice and species within the BSAI other flatfish management complex (starry flounder and dover, rex, butter, english, petrale, and sand sole).
- Tables 18, 34: “Other” species are primarily skate, squid, octopus, shark, and sculpin.

⁵<http://www.adfg.alaska.gov/index.cfm?adfg=halibut.management>.

2.2.7 Additional Notes

- Confidential values are excluded from the computation of aggregates (e.g. sums and averages) within a table. This is particularly important to remember for highly stratified tables, such as Tables 12, 13, 15, 17, 28, 29, 31, and 33. Care should be taken when comparing totals from tables containing values suppressed for confidentiality. In general, preference should be given to aggregate numbers from less stratified tables.
- Within the data tables, numbers that are smaller than the level of precision used within the table are printed as ‘0’. For example, if a table uses the one decimal place level of precision, then an actual value of ‘0.01’ is presented in the table as ‘0’.
- The Personal Consumption Expenditures: chain-type price index <https://research.stlouisfed.org/fred2/series/PCEPI> was used to deflate the ex-vessel estimates reported in Tables 4. The PCE is used to adjust to fishermen’s ex-vessel revenues to account for the change in general US consumption expenditures. The GDP: chain-type price index <https://research.stlouisfed.org/fred2/series/GDPCTPI> was used to deflate the first wholesale value estimates reported in Tables 5. The GDP price index is used to adjust to fishermen’s wholesale production revenues to account for the change in general US production prices. The use of these indices began in 2014. Before 2014 this annual report used the Producer Price Index (PPI) for unprocessed and packaged fish was used for real adjustments (<http://data.bls.gov/cgi-bin/srgate>, using the series ID ‘WPU0223’).
- Estimates of U.S. imports and per-capita consumption of various fisheries products, previously published in Tables 54-56 of this report, are available in Fisheries of the United States (FUS), published annually by the NMFS Office of Science & Technology. The most recent FUS is available at: <https://www.fisheries.noaa.gov/national/sustainable-fisheries/fisheries-united-states>.
- Observer coverage costs: In previous years, Table 51 provided estimates of the numbers of vessels and plants with observers, the numbers of observer-deployment days, and observer costs by year and type of operation. In 2013, the restructured observer program was implemented and more detailed treatment of observer cost estimates can be found in the Observer Annual Report at: <http://alaskafisheries.noaa.gov/fisheries/observer-program-reports>.

2.3. Request for Feedback

The data and estimates in this report are intended both to provide information that can be used to describe the Alaska groundfish fisheries and to provide the industry and others an opportunity to comment on the validity of these estimates. We hope that the industry and others will identify any data or estimates in this report that can be improved and provide the information and methods necessary to improve them for both past and future years. There are two reasons why it is important that such improvements be made. First, with better estimates, the report will be more successful in monitoring the economic performance of the fisheries and in identifying changes in economic performance that may be attributable to regulatory actions. Second, the estimates in this report often will be used as the basis for estimating the effects of proposed fishery management actions. Therefore, improved estimates in this report will allow more informed decisions by those involved in managing and conducting the Alaska groundfish fisheries. The industry and other stakeholders in

these fisheries can further improve the usefulness of this report by suggesting other measures of economic performance that should be included in the report, or other ways of summarizing the data that are the basis for this report, and participating in voluntary survey efforts NMFS may undertake in the future to improve existing data shortages. Please contact Ben Fissel at Ben.Fissel@noaa.gov with any comments or suggestions to improve the Economic SAFEs.

2.4. Citations

Abbott, J.K., B. Garber-Yonts and J.E. Wilen.. 2010. "Employment and Remuneration Effects of IFQs in the Bering Sea/Aleutian Islands Crab Fisheries." *Marine Resource Economics* 25(4): 333-354.

Abbott, J., A. Haynie, and M. Reimer. 2015. "Hidden Flexibility: Institutions, Incentives and the Margins of Selectivity in Fishing." *Land Economics* 91 (1): 169-195.

Cahalan, J., J. Gasper, and J. Mondragon. 2014. Catch sampling and estimation in the federal groundfish fisheries off Alaska, 2015 edition. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-286, 46 p. Available at: <http://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-286.pdf>.

Fell, H. and A. Haynie. 2011. "Estimating Time-varying Bargaining Power: A Fishery Application." *Economic Inquiry* 49(3): 685-696.

Fell, H. and A. Haynie. 2012. "Spatial Competition with Changing Market Institutions." *Journal of Applied Econometrics*, DOI: 10.1002/jae.2272.

Felthoven, R.G.. 2002. "Effects of the American Fisheries Act on capacity, utilization and technical efficiency." *Marine Resources Economics* 17(3): 181-206.

Fissel, B., M. Dalton, B. Garber-Yonts, A. Haynie, S. Kasperski, J. Lee, D. Lew, C. Seung, K. Sparks, M. Szymkowiak, and S. Wise. "Stock Assessment and Fishery Evaluation Report for the Groundfish Fisheries of the Gulf of Alaska and Bering Sea/Aleutian Island Area: Economic Status of the Groundfish Fisheries off Alaska, 2018", NPFMC, November, 2019. <https://www.fisheries.noaa.gov/alaska/ecosystems/economic-status-reports-gulf-alaska-and-bering-sea-aleutian-islands>.

Gordon, H.S.. 1954. "The Economic Theory of a Common-Property Resource: The Fishery." *The Journal of Political Economy* 62(2): 124-142.

Holland, D.. 2000. "Fencing the Commons: Regulatory Barbed Wire in the Alaskan Groundfish Fisheries." *Marine Resource Economics* 15(2): 141-149.

Homans, F., and J. Wilen. 2005. "Markets and rent dissipation in regulated open access fisheries." *Journal of Environmental Economics and Management*, 49: 381-404.

National Marine Fisheries Service, 2015. Fisheries of the United States, 2015. http://www.st.nmfs.noaa.gov/Assets/commercial/fus/fus13/02_commercial2015.pdf

Scott, A.. 1955. "The fishery: the objectives of sole ownership." *Journal of Political Economy* 63(2): 116-124.

Torres, M. and R. Felthoven. 2014. "Productivity growth and product choice in catch share fisheries: The case of Alaska pollock." *Marine Policy*, 50: 280-289.

Williams, G.H. 2015. Recommendations for Pacific halibut discard mortality rates in the 2016-2018 groundfish fisheries off Alaska. *Int. Pac. Halibut Comm. Report of Assessment and Research Activities 2015*: 381-397. Available at: http://www.iphc.int/publications/rara/2015/RARA2015_21DMR.pdf.

Wilen, J.E., E. Richardson. 2008 "Rent generation in the alaskan pollock conservation cooperative." *FAO Fisheries Technical Paper*, 361.

2.5. Acknowledgements

ESSRP wishes to thank the Alaska Fisheries Information Network (AKFIN) for database programming and data management services to support production of the Economic SAFE. Other parties who provided assistance or feedback in the assembly of this report or earlier versions include: Terry Hiatt, Ren Narita, Camille Kohler, Mike Fey (AKFIN); Jennifer Mondragon (NMFS Alaska Region Office, Sustainable Fisheries Division), Mary Furuness (NMFS Alaska Region Office, Sustainable Fisheries Division).

3. FIGURES REPORTING ECONOMIC DATA OF THE GROUNDFISH FISHERIES OFF ALASKA

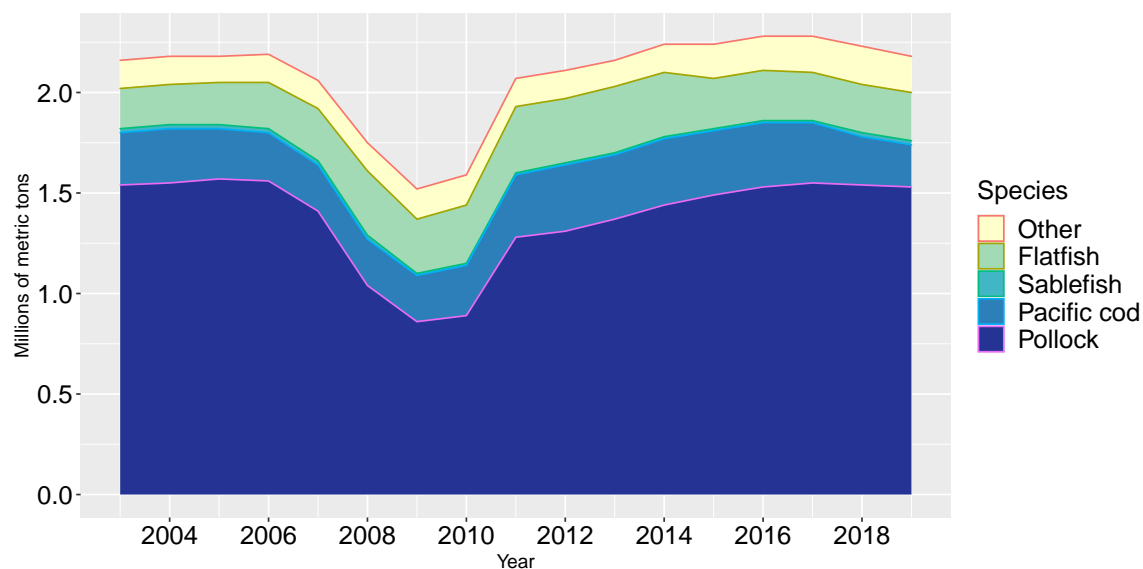


Figure 3.1: Groundfish catch in the commercial fisheries off Alaska by species, 2003-2019.

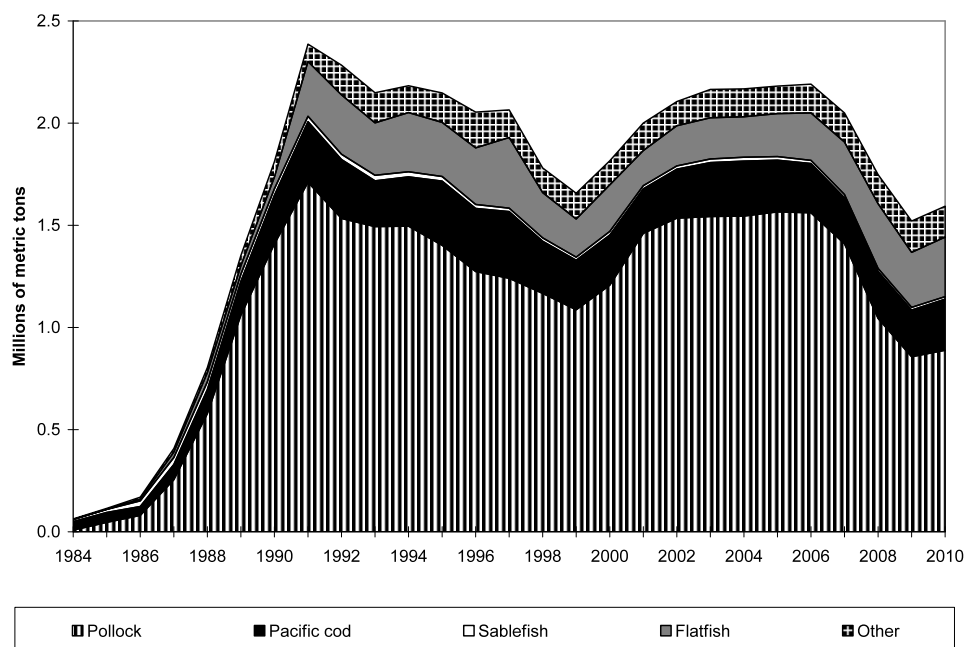


Figure 3.2: Groundfish catch in the commercial fisheries off Alaska by species, (1984-2010).
Notes: Catch for 2011 and onward are displayed in Figure 3.1.

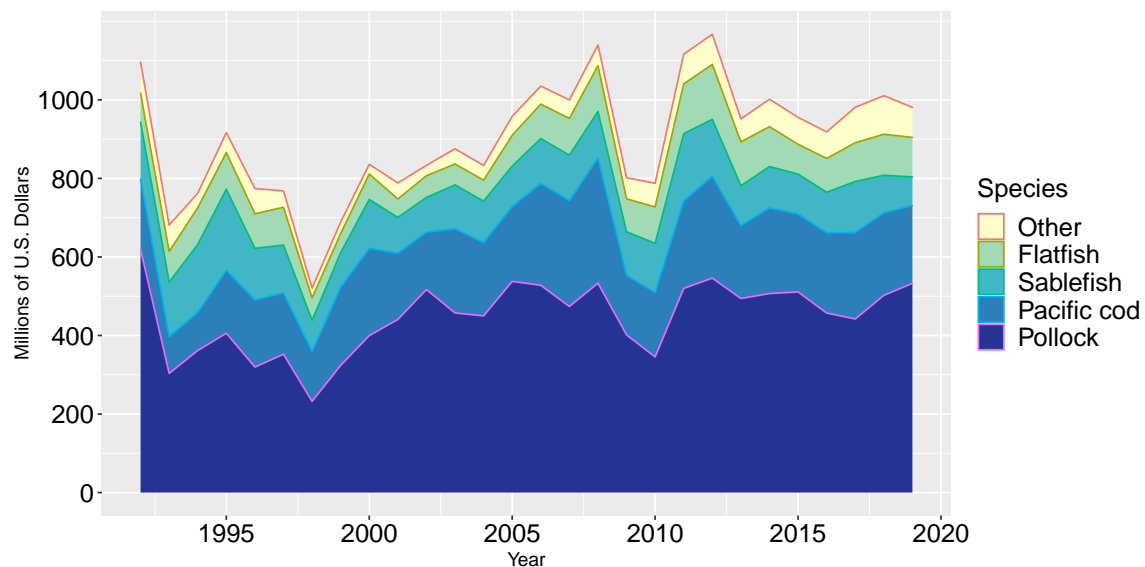


Figure 3.3: Real ex-vessel value of the groundfish catch in the commercial fisheries off Alaska by species, 1992-2019 (base year = 2019).

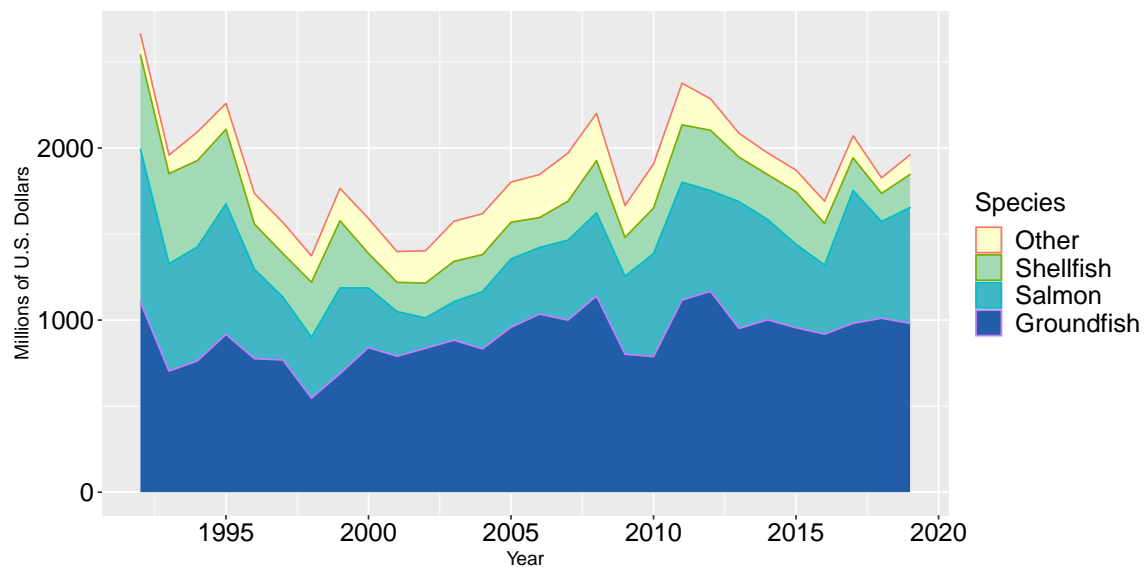


Figure 3.4: Real ex-vessel value of the domestic fish and shellfish catch off Alaska by species group, 1992-2019 (base year = 2019).

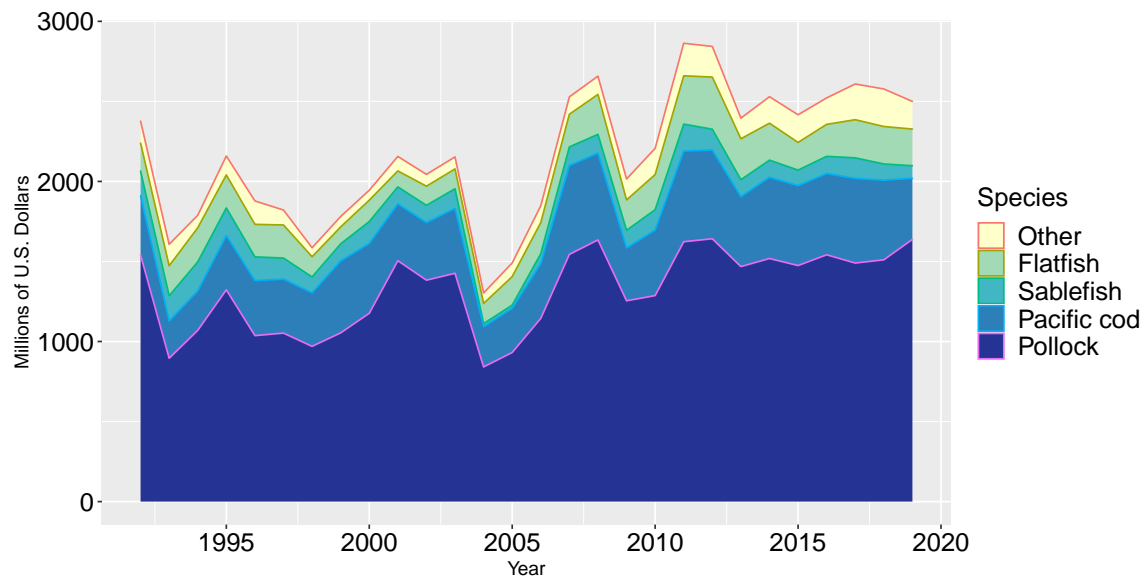


Figure 3.5: Real gross product value of the groundfish catch off Alaska by species, 1992-2019 (base year = 2019).

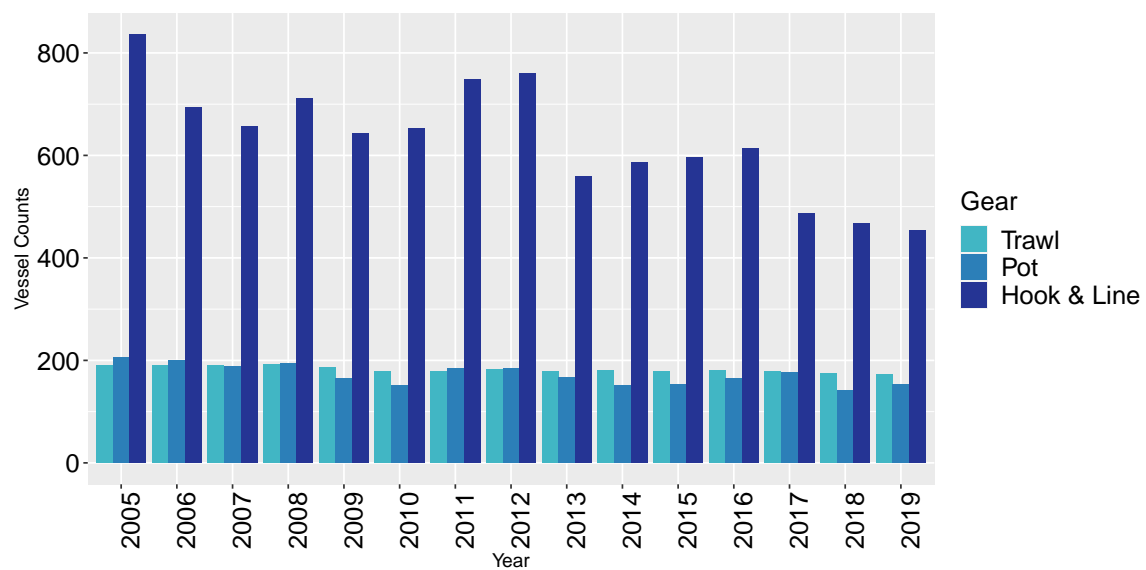


Figure 3.6: Number of vessels in the domestic fishery off Alaska by gear type, 2005-2019.

4. TABLES REPORTING ECONOMIC DATA OF THE GROUND FISH FISHERIES OFF ALASKA

Table 1: Groundfish catch in the commercial fisheries off Alaska by area and species, 2010-2019 (1,000 metric tons, round weight).

| | Year | Pollock | Sablefish | Pacific Cod | Flatfish | Rockfish | Atka Mackerel | Total |
|---------------------------------|------|---------|-----------|-------------|----------|----------|---------------|---------|
| Bering Sea and Aleutian Islands | 2010 | 811.7 | 1.8 | 171.9 | 253.2 | 23.5 | 68.6 | 1,354.5 |
| | 2011 | 1,200.4 | 1.7 | 220.1 | 285.9 | 28.2 | 51.8 | 1,818.4 |
| | 2012 | 1,206.3 | 2.0 | 251.0 | 291.2 | 28.1 | 47.8 | 1,857.9 |
| | 2013 | 1,273.8 | 1.7 | 250.3 | 297.2 | 34.9 | 23.2 | 1,914.6 |
| | 2014 | 1,300.2 | 1.1 | 249.3 | 276.1 | 36.1 | 31.0 | 1,928.5 |
| | 2015 | 1,323.2 | 0.6 | 242.1 | 219.2 | 39.7 | 53.3 | 1,914.3 |
| | 2016 | 1,354.9 | 0.9 | 260.9 | 225.2 | 36.9 | 54.5 | 1,969.4 |
| | 2017 | 1,360.9 | 1.7 | 253.0 | 211.1 | 38.4 | 64.4 | 1,969.4 |
| | 2018 | 1,381.1 | 2.3 | 220.3 | 212.1 | 42.0 | 70.4 | 1,966.6 |
| | 2019 | 1,410.9 | 3.9 | 197.9 | 207.1 | 54.7 | 57.2 | 1,957.9 |
| Gulf of Alaska | 2010 | 76.7 | 11.0 | 78.4 | 37.9 | 25.5 | 2.4 | 239.1 |
| | 2011 | 81.5 | 12.1 | 85.4 | 41.0 | 23.1 | 1.6 | 252.1 |
| | 2012 | 104.0 | 12.7 | 77.9 | 29.5 | 27.4 | 1.2 | 258.9 |
| | 2013 | 96.4 | 12.8 | 68.6 | 33.9 | 24.9 | 1.3 | 250.1 |
| | 2014 | 142.6 | 11.1 | 85.0 | 47.6 | 28.9 | 1.0 | 326.5 |
| | 2015 | 167.5 | 11.1 | 79.5 | 26.7 | 29.0 | 1.2 | 324.6 |
| | 2016 | 177.1 | 10.0 | 64.1 | 28.1 | 33.9 | 1.1 | 324.2 |
| | 2017 | 186.2 | 11.3 | 48.7 | 33.3 | 31.8 | 1.1 | 321.4 |
| | 2018 | 158.1 | 13.0 | 15.2 | 25.8 | 34.2 | 1.4 | 255.7 |
| | 2019 | 120.2 | 13.8 | 15.7 | 31.9 | 34.2 | 1.3 | 224.0 |
| All Alaska | 2010 | 888.4 | 12.8 | 250.3 | 291.1 | 49.0 | 71.1 | 1,593.6 |
| | 2011 | 1,281.9 | 13.8 | 305.5 | 326.9 | 51.3 | 53.4 | 2,070.6 |
| | 2012 | 1,310.2 | 14.7 | 328.9 | 320.7 | 55.5 | 49.0 | 2,116.8 |
| | 2013 | 1,370.2 | 14.5 | 318.9 | 331.1 | 59.8 | 24.5 | 2,164.7 |
| | 2014 | 1,442.9 | 12.3 | 334.3 | 323.6 | 65.0 | 32.0 | 2,255.0 |
| | 2015 | 1,490.8 | 11.7 | 321.5 | 245.9 | 68.7 | 54.5 | 2,238.9 |
| | 2016 | 1,532.1 | 10.9 | 325.0 | 253.3 | 70.8 | 55.6 | 2,293.5 |
| | 2017 | 1,547.1 | 13.0 | 301.8 | 244.4 | 70.2 | 65.5 | 2,290.8 |
| | 2018 | 1,539.2 | 15.3 | 235.5 | 237.9 | 76.2 | 71.8 | 2,222.3 |
| | 2019 | 1,531.1 | 17.6 | 213.7 | 239.0 | 89.0 | 58.5 | 2,181.9 |

Notes: The estimates are of total catch (i.e., retained and discarded catch). These estimates include catch from both federal and state of Alaska fisheries. As such, totals may be slightly larger than retained catch estimates provided in later tables.

Source: NMFS Office of Science and Technology, Fisheries Statistics Division, Fisheries of the United States. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 2: Groundfish retained catch off Alaska by area, sector, and species, 2015-2019 (1,000 metric tons, round weight).

| | Year | Bering Sea and Aleutian Islands | | | Gulf of Alaska | | | All Alaska | | |
|-------------|------|---------------------------------|--------------------|----------|-----------------|--------------------|--------|-----------------|--------------------|----------|
| | | Catcher Vessels | Catcher Processors | Total | Catcher Vessels | Catcher Processors | Total | Catcher Vessels | Catcher Processors | Total |
| Pollock | 2015 | 687.15 | 626.45 | 1,313.60 | 165.10 | 1.07 | 166.17 | 852.25 | 627.52 | 1,479.77 |
| | 2016 | 703.95 | 641.77 | 1,345.72 | 175.50 | 0.57 | 176.07 | 879.45 | 642.33 | 1,521.78 |
| | 2017 | 710.38 | 642.25 | 1,352.63 | 183.26 | 1.07 | 184.33 | 893.65 | 643.31 | 1,536.96 |
| | 2018 | 718.33 | 651.43 | 1,369.77 | 155.28 | 0.60 | 155.88 | 873.61 | 652.04 | 1,525.65 |
| | 2019 | 735.55 | 666.18 | 1,401.73 | 118.56 | 0.33 | 118.89 | 854.12 | 666.51 | 1,520.63 |
| Sablefish | 2015 | 0.48 | 0.14 | 0.62 | 9.27 | 0.94 | 10.21 | 9.75 | 1.08 | 10.83 |
| | 2016 | 0.40 | 0.39 | 0.80 | 8.28 | 0.78 | 9.06 | 8.69 | 1.17 | 9.86 |
| | 2017 | 0.70 | 0.76 | 1.46 | 9.05 | 1.02 | 10.08 | 9.76 | 1.79 | 11.54 |
| | 2018 | 0.83 | 0.95 | 1.78 | 9.51 | 1.02 | 10.53 | 10.34 | 1.97 | 12.31 |
| | 2019 | 1.56 | 0.61 | 2.17 | 9.78 | 1.10 | 10.88 | 11.34 | 1.71 | 13.05 |
| Pacific Cod | 2015 | 68.44 | 170.58 | 239.01 | 71.09 | 6.35 | 77.45 | 139.53 | 176.93 | 316.46 |
| | 2016 | 86.05 | 171.64 | 257.69 | 57.90 | 5.20 | 63.11 | 143.95 | 176.84 | 320.79 |
| | 2017 | 87.97 | 162.10 | 250.07 | 41.87 | 6.10 | 47.97 | 129.84 | 168.20 | 298.04 |
| | 2018 | 82.48 | 135.53 | 218.01 | 12.66 | 1.75 | 14.40 | 95.14 | 137.27 | 232.41 |
| | 2019 | 77.48 | 118.33 | 195.81 | 12.90 | 1.55 | 14.45 | 90.37 | 119.88 | 210.25 |
| Flatfish | 2015 | 11.80 | 195.96 | 207.75 | 11.06 | 10.49 | 21.55 | 22.85 | 206.45 | 229.30 |
| | 2016 | 14.68 | 196.76 | 211.44 | 17.76 | 5.85 | 23.61 | 32.44 | 202.61 | 235.05 |
| | 2017 | 21.15 | 177.45 | 198.60 | 14.52 | 14.79 | 29.30 | 35.67 | 192.24 | 227.91 |
| | 2018 | 16.56 | 180.84 | 197.40 | 17.71 | 4.89 | 22.60 | 34.27 | 185.73 | 220.00 |
| | 2019 | 22.76 | 174.05 | 196.81 | 21.32 | 6.84 | 28.16 | 44.07 | 180.89 | 224.97 |

Continued on next page.

Table 2: Continued

| | Year | Bering Sea and Aleutian Islands | | | Gulf of Alaska | | | All Alaska | | |
|----------------|------|---------------------------------|--------------------|----------|-----------------|--------------------|--------|-----------------|--------------------|----------|
| | | Catcher Vessels | Catcher Processors | Total | Catcher Vessels | Catcher Processors | Total | Catcher Vessels | Catcher Processors | Total |
| Rockfish | 2015 | 3.12 | 34.40 | 37.52 | 12.28 | 14.41 | 26.69 | 15.40 | 48.82 | 64.22 |
| | 2016 | 2.54 | 32.79 | 35.34 | 15.19 | 15.64 | 30.83 | 17.74 | 48.43 | 66.17 |
| | 2017 | 2.53 | 32.97 | 35.49 | 11.31 | 15.61 | 26.93 | 13.84 | 48.58 | 62.42 |
| | 2018 | 3.51 | 35.27 | 38.78 | 14.70 | 16.71 | 31.41 | 18.21 | 51.98 | 70.19 |
| | 2019 | 4.89 | 44.90 | 49.79 | 14.91 | 15.88 | 30.79 | 19.80 | 60.78 | 80.58 |
| Atka Mackerel | 2015 | 3.21 | 49.26 | 52.47 | 0.03 | 0.84 | 0.87 | 3.24 | 50.10 | 53.34 |
| | 2016 | 3.68 | 50.38 | 54.06 | 0.41 | 0.39 | 0.80 | 4.09 | 50.77 | 54.86 |
| | 2017 | 4.57 | 59.48 | 64.05 | 0.13 | 0.52 | 0.65 | 4.70 | 60.00 | 64.71 |
| | 2018 | 5.65 | 63.86 | 69.51 | 0.18 | 1.10 | 1.28 | 5.83 | 64.96 | 70.78 |
| | 2019 | 3.25 | 53.33 | 56.59 | 0.11 | 0.79 | 0.90 | 3.36 | 54.13 | 57.49 |
| All Groundfish | 2015 | 776.46 | 1,084.55 | 1,861.01 | 270.77 | 34.33 | 305.10 | 1,047.23 | 1,118.89 | 2,166.11 |
| | 2016 | 811.84 | 1,100.54 | 1,912.38 | 276.53 | 28.64 | 305.16 | 1,088.37 | 1,129.17 | 2,217.54 |
| | 2017 | 828.42 | 1,084.39 | 1,912.80 | 261.14 | 39.40 | 300.54 | 1,089.56 | 1,123.78 | 2,213.34 |
| | 2018 | 829.18 | 1,079.90 | 1,909.08 | 210.97 | 26.17 | 237.14 | 1,040.15 | 1,106.06 | 2,146.21 |
| | 2019 | 846.16 | 1,066.54 | 1,912.70 | 178.71 | 26.57 | 205.28 | 1,024.87 | 1,093.11 | 2,117.98 |

Notes: The estimates are of retained catch (i.e., excludes discarded catch). All groundfish include additional species categories. These estimates include only catch counted against federal TACs. Includes FMP groundfish catch on halibut targets. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 3: Groundfish ex-vessel value off Alaska by area, sector, and species, 2015-2019 (\$ millions).

| | Year | Bering Sea and Aleutian Islands | | | Gulf of Alaska | | | All Alaska | | |
|-------------|------|---------------------------------|--------------------|-------------|-----------------|--------------------|-------------|-----------------|--------------------|-------------|
| | | Catcher Vessels | Catcher Processors | Total | Catcher Vessels | Catcher Processors | Total | Catcher Vessels | Catcher Processors | Total |
| Pollock | 2015 | 227,788,965 | 207,941,681 | 435,730,646 | 43,534,586 | 278,816 | 43,813,401 | 271,323,550 | 208,220,497 | 479,544,047 |
| | 2016 | 210,054,172 | 191,481,777 | 401,535,949 | 32,169,714 | 102,595 | 32,272,309 | 242,223,886 | 191,584,372 | 433,808,258 |
| | 2017 | 206,507,276 | 185,063,192 | 391,570,468 | 35,038,743 | 204,693 | 35,243,436 | 241,546,019 | 185,267,885 | 426,813,904 |
| | 2018 | 237,300,040 | 215,139,073 | 452,439,114 | 42,034,326 | 163,248 | 42,197,575 | 279,334,366 | 215,302,322 | 494,636,688 |
| | 2019 | 260,622,423 | 235,990,746 | 496,613,169 | 36,008,279 | 100,334 | 36,108,612 | 296,630,702 | 236,091,079 | 532,721,781 |
| Sablefish | 2015 | 3,898,367 | 1,039,539 | 4,937,906 | 82,801,536 | 7,473,728 | 90,275,264 | 86,699,903 | 8,513,267 | 95,213,170 |
| | 2016 | 3,539,375 | 1,758,499 | 5,297,874 | 85,573,922 | 6,989,599 | 92,563,521 | 89,113,297 | 8,748,098 | 97,861,396 |
| | 2017 | 5,831,072 | 3,261,245 | 9,092,317 | 105,846,644 | 10,403,450 | 116,250,093 | 111,677,715 | 13,664,695 | 125,342,410 |
| | 2018 | 3,082,166 | 2,687,554 | 5,769,720 | 81,364,344 | 7,018,841 | 88,383,185 | 84,446,509 | 9,706,395 | 94,152,904 |
| | 2019 | 4,438,218 | 1,387,619 | 5,825,837 | 61,907,728 | 5,188,818 | 67,096,546 | 66,345,946 | 6,576,437 | 72,922,383 |
| Pacific Cod | 2015 | 37,648,885 | 98,395,735 | 136,044,620 | 45,938,591 | 4,187,764 | 50,126,356 | 83,587,477 | 102,583,499 | 186,170,976 |
| | 2016 | 49,747,928 | 103,073,159 | 152,821,087 | 37,498,776 | 3,426,627 | 40,925,403 | 87,246,704 | 106,499,786 | 193,746,490 |
| | 2017 | 60,668,676 | 116,368,687 | 177,037,363 | 30,787,281 | 4,501,875 | 35,289,156 | 91,455,958 | 120,870,562 | 212,326,519 |
| | 2018 | 71,977,163 | 120,725,844 | 192,703,007 | 12,525,125 | 1,728,768 | 14,253,894 | 84,502,289 | 122,454,612 | 206,956,901 |
| | 2019 | 70,256,802 | 111,791,260 | 182,048,063 | 13,819,686 | 1,668,903 | 15,488,590 | 84,076,489 | 113,460,164 | 197,536,652 |
| Flatfish | 2015 | 3,634,548 | 60,026,753 | 63,661,301 | 3,430,395 | 3,264,858 | 6,695,253 | 7,064,943 | 63,291,611 | 70,356,554 |
| | 2016 | 5,226,361 | 69,952,663 | 75,179,023 | 4,533,674 | 1,493,112 | 6,026,785 | 9,760,034 | 71,445,774 | 81,205,809 |
| | 2017 | 9,339,263 | 77,866,817 | 87,206,080 | 3,788,553 | 3,857,685 | 7,646,238 | 13,127,817 | 81,724,502 | 94,852,319 |
| | 2018 | 8,070,452 | 88,209,268 | 96,279,719 | 4,942,912 | 1,366,211 | 6,309,123 | 13,013,364 | 89,575,478 | 102,588,842 |
| | 2019 | 10,885,205 | 83,076,592 | 93,961,797 | 4,653,460 | 1,492,858 | 6,146,318 | 15,538,664 | 84,569,451 | 100,108,115 |

Continued on next page.

Table 3: Continued

| | Year | Bering Sea and Aleutian Islands | | | Gulf of Alaska | | | All Alaska | | |
|----------------|------|---------------------------------|--------------------|-------------|-----------------|--------------------|-------------|-----------------|--------------------|-------------|
| | | Catcher Vessels | Catcher Processors | Total | Catcher Vessels | Catcher Processors | Total | Catcher Vessels | Catcher Processors | Total |
| Rockfish | 2015 | 1,413,350 | 15,112,914 | 16,526,264 | 6,222,568 | 6,026,852 | 12,249,420 | 7,635,918 | 21,139,766 | 28,775,685 |
| | 2016 | 1,029,409 | 12,896,292 | 13,925,700 | 7,365,826 | 6,424,947 | 13,790,773 | 8,395,235 | 19,321,239 | 27,716,474 |
| | 2017 | 1,225,906 | 15,621,544 | 16,847,450 | 5,663,115 | 6,298,709 | 11,961,824 | 6,889,021 | 21,920,253 | 28,809,274 |
| | 2018 | 1,666,817 | 16,505,143 | 18,171,960 | 7,613,673 | 7,134,380 | 14,748,053 | 9,280,490 | 23,639,523 | 32,920,013 |
| | 2019 | 1,733,830 | 15,813,350 | 17,547,181 | 7,568,437 | 6,886,507 | 14,454,944 | 9,302,267 | 22,699,857 | 32,002,125 |
| Atka Mackerel | 2015 | 1,817,062 | 27,871,153 | 29,688,215 | 21,675 | 558,713 | 580,387 | 1,838,736 | 28,429,866 | 30,268,602 |
| | 2016 | 2,052,069 | 28,087,928 | 30,139,997 | 263,186 | 254,397 | 517,583 | 2,315,255 | 28,342,325 | 30,657,580 |
| | 2017 | 3,586,957 | 46,658,826 | 50,245,783 | 113,158 | 445,686 | 558,844 | 3,700,115 | 47,104,512 | 50,804,627 |
| | 2018 | 4,331,047 | 48,940,479 | 53,271,526 | 138,367 | 861,521 | 999,888 | 4,469,414 | 49,802,000 | 54,271,414 |
| | 2019 | 2,031,067 | 33,296,542 | 35,327,608 | 70,393 | 514,411 | 584,804 | 2,101,460 | 33,810,953 | 35,912,413 |
| All Groundfish | 2015 | 276,741,532 | 412,901,108 | 689,642,639 | 183,849,804 | 22,008,876 | 205,858,680 | 460,591,336 | 434,909,984 | 895,501,320 |
| | 2016 | 271,819,136 | 410,863,864 | 682,683,000 | 168,875,198 | 18,895,043 | 187,770,241 | 440,694,334 | 429,758,907 | 870,453,241 |
| | 2017 | 287,578,446 | 450,629,438 | 738,207,884 | 182,256,708 | 25,990,231 | 208,246,938 | 469,835,154 | 476,619,668 | 946,454,822 |
| | 2018 | 327,087,674 | 499,812,888 | 826,900,563 | 149,532,171 | 18,370,203 | 167,902,374 | 476,619,846 | 518,183,091 | 994,802,937 |
| | 2019 | 350,191,845 | 488,184,281 | 838,376,125 | 125,186,797 | 15,933,129 | 141,119,926 | 475,378,642 | 504,117,409 | 979,496,051 |

Notes: Ex-vessel value is calculated by multiplying ex-vessel prices by the retained round weight catch. The value added by at-sea processing is not included in these estimates of ex-vessel value. All groundfish includes additional species categories. Values are not adjusted for inflation. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 4: Catch and real ex-vessel value of the commercial fisheries off Alaska by species group and area, 2015-2019; calculations based on COAR (1,000 metric tons and \$ millions, base year = 2019).

| | Species.group | Bering Sea and Aleutian Islands | | Gulf of Alaska | | All Alaska | |
|------|---------------|------------------------------------|------------|----------------|----------|------------|------------|
| | | Quantity | Value | Quantity | Value | Quantity | Value |
| 2015 | Groundfish | 1,861.1 | \$ 734.7 | 308.2 | \$ 220.6 | 2,169.3 | \$ 955.3 |
| | Salmon | 102.7 | \$ 151.6 | 368.1 | \$ 331.9 | 470.7 | \$ 483.5 |
| | Halibut | 1.4 | \$ 18.8 | 6.8 | \$ 100.5 | 8.2 | \$ 119.3 |
| | Herring | 21.3 | \$ 2.0 | 9.4 | \$ 5.4 | 30.7 | \$ 7.4 |
| | Shellfish | 41.6 | \$ 279.0 | 3.6 | \$ 25.8 | 45.2 | \$ 304.8 |
| | Other | - | \$ - | 1.3 | \$ 7.1 | 1.3 | \$ 7.1 |
| | All Species | 2,028.0 | \$ 1,186.2 | 697.4 | \$ 691.3 | 2,725.5 | \$ 1,877.4 |
| 2016 | Groundfish | 1,912.5 | \$ 719.5 | 307.7 | \$ 198.8 | 2,220.3 | \$ 918.3 |
| | Salmon | 110.1 | \$ 230.4 | 134.7 | \$ 242.1 | 244.8 | \$ 472.5 |
| | Halibut | 1.5 | \$ 20.6 | 6.9 | \$ 104.7 | 8.4 | \$ 125.4 |
| | Herring | 13.8 | \$ 1.8 | 9.6 | \$ 5.0 | 23.3 | \$ 6.8 |
| | Shellfish | 29.2 | \$ 259.5 | 3.0 | \$ 22.3 | 32.2 | \$ 281.8 |
| | Other | - | \$ - | 1.2 | \$ 7.3 | 1.2 | \$ 7.3 |
| | All Species | 2,067.1 | \$ 1,231.9 | 463.0 | \$ 580.2 | 2,530.1 | \$ 1,812.1 |
| 2017 | Groundfish | 1,913.2 | \$ 764.9 | 301.9 | \$ 216.2 | 2,215.2 | \$ 981.1 |
| | Salmon | 115.4 | \$ 319.4 | 330.0 | \$ 450.6 | 445.4 | \$ 770.1 |
| | Halibut | 1.7 | \$ 20.0 | 7.7 | \$ 101.3 | 9.3 | \$ 121.3 |
| | Herring | 17.6 | \$ 2.5 | 13.3 | \$ 5.8 | 30.9 | \$ 8.3 |
| | Shellfish | 16.0 | \$ 167.1 | 2.7 | \$ 22.6 | 18.8 | \$ 189.8 |
| | Other | - | \$ - | 1.0 | \$ 8.4 | 1.0 | \$ 8.4 |
| | All Species | 2,063.9 | \$ 1,273.9 | 656.6 | \$ 805.0 | 2,720.6 | \$ 2,078.9 |
| 2018 | Groundfish | 1,909.4 | \$ 839.5 | 238.9 | \$ 171.1 | 2,148.2 | \$ 1,010.6 |
| | Salmon | 116.2 | \$ 385.9 | 133.7 | \$ 262.7 | 249.8 | \$ 648.7 |
| | Halibut | 1.6 | \$ 14.6 | 6.7 | \$ 74.0 | 8.3 | \$ 88.5 |
| | Herring | 16.8 | \$ 18.6 | 3.7 | \$ 4.3 | 20.5 | \$ 22.9 |
| | Shellfish | 14.3 | \$ 149.4 | 4.5 | \$ 32.2 | 18.8 | \$ 181.6 |
| | Other | - | \$ - | 1.2 | \$ 10.5 | 1.2 | \$ 10.5 |
| | All Species | 2,058.2 | \$ 1,408.0 | 388.6 | \$ 554.8 | 2,446.9 | \$ 1,962.8 |
| 2019 | Groundfish | 1,912.8 | \$ 838.5 | 207.8 | \$ 142.3 | 2,120.6 | \$ 980.8 |
| | Salmon | 116.6 | \$ 365.2 | 256.4 | \$ 318.5 | 373.0 | \$ 683.7 |
| | Halibut | 1.7 | \$ 15.1 | 7.1 | \$ 78.5 | 8.8 | \$ 93.6 |
| | Herring | 22.3 | \$ 2.3 | 0.9 | \$ 2.9 | 23.2 | \$ 5.2 |
| | Shellfish | 17.7 | \$ 151.6 | 5.8 | \$ 41.0 | 23.5 | \$ 192.6 |
| | Other | - | \$ - | 1.5 | \$ 11.6 | 1.5 | \$ 11.6 |
| | All Species | 2,071.2 | \$ 1,372.7 | 479.4 | \$ 594.9 | 2,550.6 | \$ 1,967.5 |

Notes: These estimates include the value of catch from both federal and state of Alaska fisheries. The data have been adjusted to 2019 dollars by applying the Personal Consumption Expenditure Index at <https://research.stlouisfed.org/fred2/series/PCEPI> to account for affects of inflation on fishermen's revenue.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea Production Reports; ADF&G Commercial Operators Annual Reports (COAR); and NMFS Office of Science and Technology, Fisheries Statistics Division, Fisheries of the United States. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 5: Production and real gross value of groundfish and non-groundfish products in the commercial fisheries off Alaska by species group and area of processing, 2015-2019 (1,000 metric tons product weight and \$ millions, base year = 2019).

| | Species | Bering Sea and Aleutian Islands | | Gulf of Alaska | | All Alaska | |
|------|-------------|------------------------------------|------------|----------------|------------|------------|------------|
| | | Quantity | Value | Quantity | Value | Quantity | Value |
| 2015 | Groundfish | 819.0 | \$ 2,043.1 | 126.0 | \$ 373.0 | 945.0 | \$ 2,416.1 |
| | Salmon | 70.9 | \$ 448.0 | 270.8 | \$ 1,105.8 | 341.7 | \$ 1,553.8 |
| | Halibut | 3.4 | \$ 23.0 | 6.1 | \$ 119.8 | 9.5 | \$ 142.8 |
| | Herring | 17.7 | \$ 19.8 | 10.1 | \$ 12.7 | 27.8 | \$ 32.5 |
| | Shellfish | 25.4 | \$ 343.3 | 3.9 | \$ 60.3 | 29.4 | \$ 403.6 |
| | Other | 0 | \$ 0.6 | 1.0 | \$ 18.7 | 1.0 | \$ 19.3 |
| | All Species | 936.5 | \$ 2,877.8 | 418.0 | \$ 1,690.4 | 1,354.4 | \$ 4,568.1 |
| 2016 | Groundfish | 838.2 | \$ 2,140.5 | 134.9 | \$ 381.3 | 973.1 | \$ 2,521.8 |
| | Salmon | 73.6 | \$ 550.4 | 130.3 | \$ 784.7 | 204.0 | \$ 1,335.1 |
| | Halibut | 2.4 | \$ 32.8 | 5.8 | \$ 113.9 | 8.2 | \$ 146.7 |
| | Herring | 10.2 | \$ 16.2 | 10.7 | \$ 13.8 | 20.9 | \$ 30.0 |
| | Shellfish | 18.0 | \$ 317.7 | 3.9 | \$ 65.3 | 22.0 | \$ 383.0 |
| | Other | 0 | \$ 0.3 | 1.1 | \$ 21.5 | 1.1 | \$ 21.8 |
| | All Species | 942.5 | \$ 3,057.8 | 286.7 | \$ 1,380.6 | 1,229.2 | \$ 4,438.4 |
| 2017 | Groundfish | 823.7 | \$ 2,228.8 | 136.8 | \$ 379.9 | 960.5 | \$ 2,608.7 |
| | Salmon | 74.6 | \$ 630.7 | 258.0 | \$ 1,329.3 | 332.7 | \$ 1,960.0 |
| | Halibut | 1.2 | \$ 23.4 | 6.3 | \$ 118.2 | 7.5 | \$ 141.6 |
| | Herring | 16.9 | \$ 15.2 | 14.2 | \$ 13.9 | 31.1 | \$ 29.0 |
| | Shellfish | 11.4 | \$ 231.0 | 1.7 | \$ 30.3 | 13.2 | \$ 261.3 |
| | Other | * | \$ * | 2.1 | \$ 33.5 | 2.1 | \$ 33.5 |
| | All Species | 927.8 | \$ 3,129.0 | 419.1 | \$ 1,905.0 | 1,347.0 | \$ 5,034.0 |
| 2018 | Groundfish | 823.2 | \$ 2,276.4 | 113.5 | \$ 301.0 | 936.7 | \$ 2,577.4 |
| | Salmon | 79.8 | \$ 753.6 | 133.1 | \$ 832.3 | 212.9 | \$ 1,585.9 |
| | Halibut | 0.9 | \$ 15.6 | 5.6 | \$ 96.4 | 6.5 | \$ 112.0 |
| | Herring | 12.7 | \$ 10.8 | 3.7 | \$ 8.5 | 16.4 | \$ 19.2 |
| | Shellfish | 9.6 | \$ 175.8 | 2.7 | \$ 53.5 | 12.2 | \$ 229.3 |
| | Other | * | \$ * | 1.5 | \$ 19.0 | 1.5 | \$ 19.0 |
| | All Species | 926.1 | \$ 3,232.2 | 260.2 | \$ 1,310.7 | 1,186.3 | \$ 4,542.8 |
| 2019 | Groundfish | 831.4 | \$ 2,248.8 | 99.9 | \$ 251.0 | 931.3 | \$ 2,499.8 |
| | Salmon | 83.5 | \$ 731.9 | 205.2 | \$ 1,001.8 | 288.7 | \$ 1,733.7 |
| | Halibut | 1.1 | \$ 14.0 | 6.0 | \$ 94.7 | 7.1 | \$ 108.7 |
| | Herring | 19.2 | \$ 16.3 | 0.9 | \$ 4.6 | 20.2 | \$ 20.9 |
| | Shellfish | 12.9 | \$ 233.5 | 3.2 | \$ 62.6 | 16.2 | \$ 296.1 |
| | Other | 0 | \$ 0.1 | 1.6 | \$ 24.0 | 1.6 | \$ 24.2 |
| | All Species | 948.2 | \$ 3,244.7 | 316.9 | \$ 1,438.6 | 1,265.1 | \$ 4,683.3 |

Notes: These estimates include production resulting from catch in both federal and state of Alaska fisheries. The data have been adjusted to 2019 dollars by applying the GDP: chain-type price index at <https://research.stlouisfed.org/fred2/series/GDPCTPI>. to account for affects of inflation on processor's revenue. "*" indicates a confidential value; "-" indicates no applicable data or value.

Source: ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 6: Discards and discard rates for groundfish catch off Alaska by gear, and species, 2015-2019 (1,000 metric tons, round weight).

| | Year | Fixed | | Trawl | | All Gear | |
|----------------|------|----------------|--------------|----------------|--------------|----------------|--------------|
| | | Total Discards | Discard Rate | Total Discards | Discard Rate | Total Discards | Discard Rate |
| Pollock | 2015 | 0.8 | 10 | 10.1 | 1 | 10.9 | 1 |
| | 2016 | 0.8 | 12 | 9.4 | 1 | 10.2 | 1 |
| | 2017 | 0.8 | 11 | 9.3 | 1 | 10.1 | 1 |
| | 2018 | 0.6 | 10 | 12.8 | 1 | 13.4 | 1 |
| | 2019 | 0.7 | 11 | 9.7 | 1 | 10.4 | 1 |
| Sablefish | 2015 | 0.7 | 6 | 0.2 | 17 | 0.9 | 7 |
| | 2016 | 0.9 | 9 | 0.2 | 14 | 1.0 | 10 |
| | 2017 | 0.8 | 7 | 0.6 | 27 | 1.4 | 11 |
| | 2018 | 1.0 | 8 | 2.0 | 51 | 2.9 | 19 |
| | 2019 | 1.7 | 14 | 2.7 | 53 | 4.4 | 25 |
| Pacific Cod | 2015 | 3.5 | 2 | 1.2 | 1 | 4.8 | 1 |
| | 2016 | 3.5 | 2 | 0.5 | 1 | 4.1 | 1 |
| | 2017 | 2.8 | 1 | 0.9 | 1 | 3.7 | 1 |
| | 2018 | 2.3 | 1 | 0.7 | 1 | 2.9 | 1 |
| | 2019 | 2.0 | 1 | 1.3 | 2 | 3.3 | 2 |
| Flatfish | 2015 | 3.8 | 76 | 10.4 | 4 | 14.2 | 6 |
| | 2016 | 3.2 | 76 | 12.9 | 5 | 16.0 | 6 |
| | 2017 | 3.0 | 70 | 12.1 | 5 | 15.1 | 6 |
| | 2018 | 3.1 | 83 | 13.5 | 6 | 16.7 | 7 |
| | 2019 | 2.3 | 76 | 9.8 | 4 | 12.1 | 5 |
| Rockfish | 2015 | 0.9 | 42 | 3.4 | 5 | 4.3 | 6 |
| | 2016 | 0.8 | 42 | 3.7 | 5 | 4.5 | 6 |
| | 2017 | 0.9 | 46 | 6.6 | 10 | 7.6 | 11 |
| | 2018 | 1.1 | 49 | 4.9 | 7 | 5.9 | 8 |
| | 2019 | 0.9 | 47 | 7.0 | 8 | 7.9 | 9 |
| Atka Mackerel | 2015 | 0 | 100 | 1.1 | 2 | 1.1 | 2 |
| | 2016 | 0 | 97 | 0.5 | 1 | 0.6 | 1 |
| | 2017 | 0 | 70 | 0.7 | 1 | 0.8 | 1 |
| | 2018 | 0 | 79 | 0.7 | 1 | 0.7 | 1 |
| | 2019 | 0 | 68 | 0.7 | 1 | 0.7 | 1 |
| All Groundfish | 2015 | 36.1 | 12 | 33.4 | 2 | 69.5 | 3 |
| | 2016 | 38.4 | 13 | 34.8 | 2 | 73.3 | 3 |
| | 2017 | 36.9 | 13 | 38.6 | 2 | 75.5 | 3 |
| | 2018 | 32.1 | 14 | 41.9 | 2 | 74.1 | 3 |
| | 2019 | 21.4 | 10 | 39.4 | 2 | 60.8 | 3 |

Notes: All groundfish and all gear may include additional species or gear types. Discards rates are calculated as $100 \times \text{discards} / (\text{total catch})$. See the seventh bullet in Section efsec:additional-notes for an explanation of 0 discards with positive discard rates. For details on discard estimation see Cahalan, J., J. Gasper, and J. Mondragon. 2014. Catch sampling and estimation in the federal groundfish fisheries off Alaska, 2015 edition. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-286, 46 p.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 7: Prohibited species catch (PSC) by species, area and gear, 2015-2019 (metric tons (t) or number in 1,000s).

| | Year | Halibut (t) | Herring (t) | Chinook (1,000s) | Other Salmon (1,000s) | Red King Crab (1,000s) | Other King Crab (1,000s) | Bairdi (1,000s) | Other Tanner (1,000s) | |
|--|----------|----------------|----------------|---------------------|-----------------------------|---------------------------------|-----------------------------------|--------------------|-----------------------------|----------|
| Bering Sea and Aleutian Islands | Fixed | 2015 | 326 | 0 | 0.07 | 0.13 | 181.84 | 32.41 | 633.25 | 138.02 |
| | | 2016 | 225 | * | 0.04 | 0.24 | 26.73 | 16.28 | 315.22 | 43.10 |
| | | 2017 | 193 | 0 | 0.03 | 0.20 | 34.93 | 77.39 | 357.20 | 167.70 |
| | | 2018 | 132 | 0 | 0.07 | 0.18 | 338.83 | 48.31 | 271.48 | 66.51 |
| | | 2019 | 87 | 0 | 0.02 | 0.32 | 47.22 | 12.52 | 126.33 | 88.00 |
| | Trawl | 2015 | 1,997 | 1,529 | 25.20 | 243.27 | 24.96 | 15.35 | 423.70 | 491.63 |
| | | 2016 | 2,132 | 1,494 | 32.88 | 347.10 | 41.36 | 14.77 | 221.23 | 166.97 |
| | | 2017 | 1,771 | 1,023 | 36.25 | 471.25 | 60.42 | 10.59 | 353.01 | 159.68 |
| | | 2018 | 1,944 | 540 | 17.31 | 308.83 | 30.74 | 16.03 | 183.83 | 1,582.43 |
| | | 2019 | 2,267 | 1,183 | 31.35 | 358.48 | 69.99 | 33.89 | 343.57 | 933.54 |
| | All Gear | 2015 | 2,323 | 1,529 | 25.26 | 243.40 | 206.79 | 47.76 | 1,056.95 | 629.65 |
| | | 2016 | 2,357 | 1,494 | 32.93 | 347.34 | 68.09 | 31.05 | 536.45 | 210.08 |
| | | 2017 | 1,964 | 1,023 | 36.28 | 471.45 | 95.35 | 87.98 | 710.21 | 327.38 |
| | | 2018 | 2,076 | 540 | 17.38 | 309.01 | 369.56 | 64.35 | 455.31 | 1,648.93 |
| | | 2019 | 2,355 | 1,183 | 31.38 | 358.80 | 117.20 | 46.41 | 469.90 | 1,021.54 |
| Gulf of Alaska | Fixed | 2015 | 22 | - | - | - | 0.02 | 0.04 | 128.02 | - |
| | | 2016 | 44 | - | - | - | 0.03 | 0.04 | 62.99 | 0 |
| | | 2017 | 14 | - | - | - | - | 0.09 | 4.14 | 0 |
| | | 2018 | 1 | - | - | - | 0 | 0.07 | 18.19 | - |
| | | 2019 | 1 | - | - | - | - | 0.20 | 29.92 | - |
| | Trawl | 2015 | 1,396 | 79 | 18.99 | 1.31 | - | 0.14 | 76.16 | - |
| | | 2016 | 1,331 | 144 | 21.87 | 2.76 | - | 0.72 | 91.80 | 0.18 |
| | | 2017 | 1,214 | 6 | 24.93 | 5.67 | - | 0.24 | 122.82 | - |
| | | 2018 | 1,193 | 45 | 17.00 | 9.15 | - | 0.32 | 235.73 | - |
| | | 2019 | 1,102 | 81 | 23.89 | 6.41 | - | 0.36 | 245.17 | - |
| | All Gear | 2015 | 1,419 | 79 | 18.99 | 1.31 | 0.02 | 0.18 | 204.17 | - |
| | | 2016 | 1,374 | 144 | 21.87 | 2.76 | 0.03 | 0.76 | 154.78 | 0.19 |
| | | 2017 | 1,229 | 6 | 24.93 | 5.67 | - | 0.33 | 126.96 | 0 |
| | | 2018 | 1,194 | 45 | 17.00 | 9.15 | 0 | 0.40 | 253.92 | - |
| | | 2019 | 1,103 | 81 | 23.89 | 6.41 | - | 0.56 | 275.09 | - |

Notes: These estimates include only catches counted against federal TACs. Totals may include additional categories. Totals include halibut mortality taken by Amendment 80 vessels under the Exempted Fishing Permit No. 2015-02. The estimates of halibut bycatch mortality are based on the IPHC discard mortality rates that were used for in-season management. The halibut IFQ program allows retention of halibut in the hook-and-line groundfish fisheries, making true halibut bycatch numbers unavailable for these fisheries. This is particularly a problem in the GOA for all hook-and-line fisheries and in the BSAI for the sablefish hook-and-line fishery. Therefore, estimates of halibut bycatch mortality are not included in this table for those fisheries. There were substantial changes to the observer program in 2013 that could affect the comparability of 2013 and later years, to previous years. Excludes PSC on halibut targets. Excludes PSC in state fisheries (sablefish and P. cod targets in state waters) For details on prohibited species catch estimation see Cahalan, J., J. Gasper, and J. Mondragon. 2014. Catch sampling and estimation in the federal groundfish fisheries off Alaska, 2015 edition. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-286, 46 p. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 8: Percentage of ex-vessel value of the groundfish catch off Alaska by area, residency, and species, 2015-2019; calculations based on COAR.

| | Year | Bering Sea and Aleutian Islands | | Gulf of Alaska | | All Alaska | |
|-------------------|------|------------------------------------|-------|----------------|-------|------------|-------|
| | | Alaska | Other | Alaska | Other | Alaska | Other |
| Pollock | 2015 | 18 % | 82 % | 41 % | 59 % | 20 % | 80 % |
| | 2016 | 18 % | 82 % | 45 % | 55 % | 20 % | 80 % |
| | 2017 | 14 % | 86 % | 49 % | 51 % | 17 % | 83 % |
| | 2018 | 14 % | 86 % | 48 % | 52 % | 17 % | 83 % |
| | 2019 | 13 % | 87 % | 50 % | 50 % | 15 % | 85 % |
| Sablefish | 2015 | 36 % | 64 % | 56 % | 44 % | 55 % | 45 % |
| | 2016 | 32 % | 68 % | 59 % | 41 % | 58 % | 42 % |
| | 2017 | 38 % | 62 % | 61 % | 39 % | 59 % | 41 % |
| | 2018 | 27 % | 73 % | 62 % | 38 % | 61 % | 39 % |
| | 2019 | 36 % | 64 % | 62 % | 38 % | 60 % | 40 % |
| Pacific Cod | 2015 | 25 % | 75 % | 79 % | 21 % | 39 % | 61 % |
| | 2016 | 25 % | 75 % | 78 % | 22 % | 36 % | 64 % |
| | 2017 | 26 % | 74 % | 71 % | 29 % | 34 % | 66 % |
| | 2018 | 25 % | 75 % | 70 % | 30 % | 28 % | 72 % |
| | 2019 | 27 % | 73 % | 72 % | 28 % | 31 % | 69 % |
| Flatfish | 2015 | 12 % | 88 % | 32 % | 68 % | 14 % | 86 % |
| | 2016 | 10 % | 90 % | 48 % | 52 % | 13 % | 87 % |
| | 2017 | 14 % | 86 % | 42 % | 58 % | 16 % | 84 % |
| | 2018 | 16 % | 84 % | 60 % | 40 % | 19 % | 81 % |
| | 2019 | 18 % | 82 % | 63 % | 37 % | 21 % | 79 % |
| Rockfish | 2015 | 3 % | 97 % | 26 % | 74 % | 13 % | 87 % |
| | 2016 | 1 % | 99 % | 28 % | 72 % | 14 % | 86 % |
| | 2017 | 21 % | 79 % | 41 % | 59 % | 29 % | 71 % |
| | 2018 | 20 % | 80 % | 39 % | 61 % | 29 % | 71 % |
| | 2019 | 22 % | 78 % | 38 % | 62 % | 29 % | 71 % |
| Atka Mackerel | 2015 | 0 % | 100 % | 4 % | 96 % | 0 % | 100 % |
| | 2016 | 0 % | 100 % | 30 % | 70 % | 0 % | 99 % |
| | 2017 | 24 % | 76 % | 29 % | 71 % | 24 % | 76 % |
| | 2018 | 22 % | 78 % | 17 % | 83 % | 22 % | 78 % |
| | 2019 | 25 % | 75 % | 15 % | 85 % | 24 % | 76 % |
| All Groundfish | 2015 | 17 % | 83 % | 56 % | 44 % | 26 % | 74 % |
| | 2016 | 18 % | 82 % | 58 % | 42 % | 26 % | 74 % |
| | 2017 | 18 % | 82 % | 59 % | 41 % | 27 % | 73 % |
| | 2018 | 17 % | 83 % | 57 % | 43 % | 24 % | 76 % |
| | 2019 | 17 % | 83 % | 58 % | 42 % | 23 % | 77 % |

Notes: These estimates include only catches counted against federal TACs. Ex-vessel value is calculated using prices on Table 18. Please refer to Table 18 for a description of the price derivation. Catch delivered to motherships is classified by the residency of the owner of the mothership. All other catch is classified by the residence of the owner of the fishing vessel. All groundfish include additional species categories. For catch for which the residence is unknown, there are either no data or the data have been suppressed to preserve confidentiality. Values are not adjusted for inflation.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea Production Reports; ADF&G Commercial Operators Annual Reports (COAR); and CFEC gross earnings (fish tickets) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 9: Number of vessels that caught groundfish off Alaska by area, vessel category, gear, and target, 2015-2019.

| | Year | Bering Sea and Aleutian Islands | | | Gulf of Alaska | | | All Alaska | | |
|-------------|------|---------------------------------|--------------------|-------|-----------------|--------------------|-------|-----------------|--------------------|-------|
| | | Catcher Vessels | Catcher Processors | Total | Catcher Vessels | Catcher Processors | Total | Catcher Vessels | Catcher Processors | Total |
| Pollock | 2015 | 87 | 33 | 120 | 64 | 1 | 65 | 131 | 33 | 164 |
| | 2016 | 89 | 33 | 122 | 70 | - | 70 | 138 | 33 | 171 |
| | 2017 | 87 | 31 | 118 | 65 | - | 65 | 133 | 31 | 164 |
| | 2018 | 85 | 27 | 112 | 69 | 2 | 71 | 133 | 28 | 161 |
| | 2019 | 84 | 30 | 114 | 62 | - | 62 | 125 | 30 | 155 |
| Sablefish | 2015 | 16 | 3 | 19 | 274 | 7 | 281 | 283 | 9 | 292 |
| | 2016 | 17 | 6 | 23 | 270 | 5 | 275 | 278 | 10 | 288 |
| | 2017 | 15 | 6 | 21 | 265 | 5 | 270 | 272 | 9 | 281 |
| | 2018 | 17 | 9 | 26 | 272 | 6 | 278 | 281 | 13 | 294 |
| | 2019 | 12 | 5 | 17 | 247 | 6 | 253 | 253 | 10 | 263 |
| Pacific Cod | 2015 | 101 | 49 | 150 | 375 | 11 | 386 | 456 | 52 | 508 |
| | 2016 | 110 | 52 | 162 | 349 | 11 | 360 | 437 | 53 | 490 |
| | 2017 | 128 | 45 | 173 | 237 | 9 | 246 | 330 | 45 | 375 |
| | 2018 | 144 | 49 | 193 | 151 | 3 | 154 | 267 | 50 | 317 |
| | 2019 | 149 | 47 | 196 | 173 | 3 | 176 | 301 | 47 | 348 |
| Flatfish | 2015 | 6 | 28 | 34 | 18 | 5 | 23 | 24 | 29 | 53 |
| | 2016 | 9 | 30 | 39 | 27 | 5 | 32 | 36 | 31 | 67 |
| | 2017 | 8 | 26 | 34 | 19 | 4 | 23 | 27 | 27 | 54 |
| | 2018 | 9 | 26 | 35 | 34 | 4 | 38 | 42 | 27 | 69 |
| | 2019 | 9 | 26 | 35 | 30 | 4 | 34 | 39 | 27 | 66 |

Continued on next page.

Table 9: Continued

| | Year | Bering Sea and Aleutian Islands | | | Gulf of Alaska | | | All Alaska | | |
|---------------|------|---------------------------------|--------------------|-------|-----------------|--------------------|-------|-----------------|--------------------|-------|
| | | Catcher Vessels | Catcher Processors | Total | Catcher Vessels | Catcher Processors | Total | Catcher Vessels | Catcher Processors | Total |
| Rockfish | 2015 | 6 | 15 | 21 | 171 | 8 | 179 | 176 | 18 | 194 |
| | 2016 | 3 | 18 | 21 | 233 | 12 | 245 | 236 | 21 | 257 |
| | 2017 | 3 | 16 | 19 | 208 | 11 | 219 | 211 | 19 | 230 |
| | 2018 | 3 | 21 | 24 | 189 | 9 | 198 | 192 | 24 | 216 |
| | 2019 | 4 | 22 | 26 | 181 | 9 | 190 | 185 | 24 | 209 |
| Atka Mackerel | 2015 | 5 | 9 | 14 | - | - | - | 5 | 9 | 14 |
| | 2016 | 4 | 9 | 13 | 2 | - | 2 | 6 | 9 | 15 |
| | 2017 | 4 | 12 | 16 | - | 1 | 1 | 4 | 13 | 17 |
| | 2018 | 4 | 14 | 18 | 1 | 2 | 3 | 5 | 16 | 21 |
| | 2019 | 4 | 14 | 18 | - | - | - | 4 | 14 | 18 |
| All Targets | 2015 | 166 | 69 | 235 | 702 | 22 | 724 | 819 | 72 | 891 |
| | 2016 | 170 | 71 | 241 | 724 | 26 | 750 | 840 | 73 | 913 |
| | 2017 | 182 | 68 | 250 | 599 | 22 | 621 | 721 | 70 | 791 |
| | 2018 | 195 | 66 | 261 | 546 | 16 | 562 | 667 | 68 | 735 |
| | 2019 | 194 | 65 | 259 | 538 | 19 | 557 | 664 | 67 | 731 |

Notes: The target is determined based on vessel, week, catching mode, NMFS area, and gear. These estimates include only vessels that fished part of federal TACs. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; CFEC gross earnings (fish tickets) file; NMFS Alaska Region groundfish observer data; NMFS Alaska Region permit data; CFEC vessel registration file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 10: Bering Sea & Aleutian Islands groundfish retained catch by vessel type, gear and species, 2015-2019 (1,000 metric tons, round weight).

| | Year | Catcher Vessels | | | | Catcher Processors | | | | Total | | | |
|---------------|------|-----------------|------|-------|----------|--------------------|-----|-------|----------|---------------|------|---------|----------|
| | | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear |
| Pollock | 2015 | - | - | 687.1 | 687.2 | - | - | 620.1 | 626.4 | - | - | 1,307.2 | 1,313.6 |
| | 2016 | - | - | 703.9 | 704.0 | - | - | 636.0 | 641.8 | - | - | 1,339.9 | 1,345.7 |
| | 2017 | - | - | 710.4 | 710.4 | - | - | 635.9 | 642.2 | - | - | 1,346.2 | 1,352.6 |
| | 2018 | - | - | 718.3 | 718.3 | - | - | 646.2 | 651.4 | - | - | 1,364.5 | 1,369.8 |
| | 2019 | - | - | 735.6 | 735.6 | - | - | 660.5 | 666.2 | - | - | 1,396.1 | 1,401.7 |
| Pacific Cod | 2015 | 0.8 | 29.9 | 37.7 | 68.4 | 127.9 | 8.0 | 34.7 | 170.5 | 128.7 | 37.9 | 72.4 | 239.0 |
| | 2016 | 0 | 39.4 | 46.5 | 86.0 | 126.9 | 7.6 | 37.1 | 171.6 | 126.9 | 47.1 | 83.7 | 257.6 |
| | 2017 | 0.1 | 43.2 | 44.7 | 88.0 | 124.3 | 5.8 | 31.9 | 162.1 | 124.4 | 49.0 | 76.7 | 250.0 |
| | 2018 | 0.9 | 42.2 | 39.3 | 82.5 | 100.9 | 4.3 | 30.3 | 135.5 | 101.8 | 46.5 | 69.6 | 217.9 |
| | 2019 | 1.2 | 43.1 | 33.2 | 77.5 | 88.6 | 4.2 | 25.5 | 118.2 | 89.8 | 47.3 | 58.7 | 195.7 |
| Sablefish | 2015 | 0.4 | 0.1 | 0 | 0.5 | 0.1 | - | 0 | 0.1 | 0.5 | 0.1 | 0 | 0.6 |
| | 2016 | 0.2 | * | 0 | 0.2 | 0.1 | - | 0.3 | 0.4 | 0.3 | * | 0.3 | 0.6 |
| | 2017 | 0.2 | * | 0.1 | 0.2 | 0.1 | * | 0.5 | 0.5 | 0.2 | * | 0.5 | 0.8 |
| | 2018 | 0.2 | 0.3 | 0.3 | 0.8 | 0.1 | * | 0.6 | 0.7 | 0.3 | 0.3 | 0.9 | 1.5 |
| | 2019 | 0.2 | 0.5 | 0.8 | 1.6 | 0 | * | 0.4 | 0.4 | 0.2 | 0.5 | 1.2 | 2.0 |
| Atka Mackerel | 2015 | - | - | 3.2 | 3.2 | - | - | 49.3 | 49.3 | - | - | 52.5 | 52.5 |
| | 2016 | - | - | 3.7 | 3.7 | - | - | 50.4 | 50.4 | - | - | 54.1 | 54.1 |
| | 2017 | - | - | 4.4 | 4.4 | - | - | 59.4 | 59.4 | - | - | 63.8 | 63.8 |
| | 2018 | - | - | 5.6 | 5.7 | - | - | 63.8 | 63.9 | - | - | 69.5 | 69.5 |
| | 2019 | - | - | 3.3 | 3.3 | - | - | 53.3 | 53.3 | - | - | 56.6 | 56.6 |
| Yellowfin | 2015 | - | - | 8.0 | 8.0 | 0 | - | 115.1 | 115.1 | 0 | - | 123.0 | 123.1 |
| | 2016 | - | - | 10.8 | 10.8 | * | - | 120.4 | 120.4 | * | - | 131.2 | 131.2 |
| | 2017 | - | - | 15.2 | 15.2 | 0.1 | - | 113.3 | 113.4 | 0.1 | - | 128.6 | 128.6 |
| | 2018 | - | - | 12.2 | 12.3 | 0.2 | - | 114.9 | 115.0 | 0.2 | - | 127.1 | 127.3 |
| | 2019 | - | - | 16.6 | 16.6 | 0 | - | 108.5 | 108.5 | 0 | - | 125.1 | 125.1 |
| Rock Sole | 2015 | - | - | 1.1 | 1.1 | * | - | 43.2 | 43.2 | * | - | 44.3 | 44.3 |
| | 2016 | - | - | 2.4 | 2.4 | * | - | 40.9 | 40.9 | * | - | 43.3 | 43.3 |
| | 2017 | - | - | 3.1 | 3.1 | 0 | - | 30.8 | 30.8 | 0 | - | 33.9 | 33.9 |
| | 2018 | * | - | 1.6 | 1.6 | 0 | - | 25.6 | 25.6 | 0 | - | 27.1 | 27.1 |
| | 2019 | * | - | 2.3 | 2.3 | 0 | - | 22.0 | 22.0 | 0 | - | 24.3 | 24.3 |

Continued on next page.

Table 10: Continued

| | Year | Catcher Vessels | | | | Catcher Processors | | | | Total | | | |
|---------------------------|------|---------------------|-----|-------|-------------|---------------------|-----|-------|-------------|---------------------|-----|-------|-------------|
| | | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear |
| Flathead Sole | 2015 | - | - | 0.8 | 0.8 | 0 | - | 9.2 | 9.2 | 0 | - | 10.1 | 10.1 |
| | 2016 | - | - | 0.4 | 0.4 | - | - | 8.6 | 8.6 | - | - | 9.0 | 9.0 |
| | 2017 | - | - | 0.6 | 0.6 | 0 | - | 7.5 | 7.5 | 0 | - | 8.1 | 8.1 |
| | 2018 | - | - | 0.8 | 0.8 | * | - | 9.4 | 9.4 | * | - | 10.2 | 10.2 |
| | 2019 | * | - | 0.8 | 0.8 | 0 | - | 14.0 | 14.1 | 0 | - | 14.9 | 14.9 |
| Arrowtooth | 2015 | * | - | 0.3 | 0.3 | 0.1 | - | 9.1 | 9.2 | 0.1 | - | 9.3 | 9.4 |
| | 2016 | * | - | 0.2 | 0.2 | 0 | - | 8.8 | 8.8 | 0 | - | 9.0 | 9.0 |
| | 2017 | * | - | 0.1 | 0.1 | 0.2 | - | 5.2 | 5.4 | 0.2 | - | 5.4 | 5.6 |
| | 2018 | 0 | - | 0.2 | 0.2 | 0.1 | - | 5.6 | 5.7 | 0.1 | - | 5.8 | 5.9 |
| | 2019 | - | - | 0.6 | 0.6 | 0.1 | - | 8.2 | 8.3 | 0.1 | - | 8.8 | 8.9 |
| Kamchatka Flounder | 2015 | - | - | 0 | 0 | 0 | - | 4.6 | 4.6 | 0 | - | 4.6 | 4.6 |
| | 2016 | - | - | 0 | 0 | 0 | - | 4.5 | 4.5 | 0 | - | 4.5 | 4.5 |
| | 2017 | - | - | 0.1 | 0.1 | 0 | - | 4.1 | 4.1 | 0 | - | 4.2 | 4.2 |
| | 2018 | - | - | 0 | 0 | 0 | - | 2.8 | 2.8 | 0 | - | 2.9 | 2.9 |
| | 2019 | - | - | 0.1 | 0.1 | 0 | - | 4.1 | 4.1 | 0 | - | 4.1 | 4.1 |
| Turbot | 2015 | * | - | 0 | 0 | 1.1 | - | 1.0 | 2.0 | 1.1 | - | 1.0 | 2.1 |
| | 2016 | * | - | 0 | 0 | 0.9 | - | 1.2 | 2.1 | 0.9 | - | 1.2 | 2.1 |
| | 2017 | - | - | 0 | 0 | 0.9 | - | 1.8 | 2.7 | 0.9 | - | 1.8 | 2.7 |
| | 2018 | - | - | 0 | 0 | 0.3 | - | 1.5 | 1.7 | 0.3 | - | 1.5 | 1.7 |
| | 2019 | * | - | 0 | 0 | 0.5 | - | 2.2 | 2.8 | 0.5 | - | 2.2 | 2.8 |
| Other Flatfish | 2015 | - | - | 1.5 | 1.5 | 0 | - | 12.6 | 12.6 | 0 | - | 14.1 | 14.1 |
| | 2016 | - | - | 0.9 | 0.9 | * | - | 11.4 | 11.4 | * | - | 12.3 | 12.3 |
| | 2017 | - | - | 2.0 | 2.0 | * | - | 13.4 | 13.4 | * | - | 15.4 | 15.4 |
| | 2018 | - | - | 1.7 | 1.7 | * | - | 20.5 | 20.5 | * | - | 22.2 | 22.2 |
| | 2019 | - | - | 2.4 | 2.4 | 0 | - | 14.3 | 14.3 | 0 | - | 16.6 | 16.6 |
| Pacific Ocean Perch | 2015 | * | - | 2.8 | 2.8 | 0 | - | 27.2 | 27.2 | 0 | - | 30.0 | 30.0 |
| | 2016 | * | - | 2.3 | 2.3 | * | - | 28.0 | 28.0 | * | - | 30.3 | 30.3 |
| | 2017 | - | - | 2.3 | 2.3 | 0 | - | 28.0 | 28.0 | 0 | - | 30.3 | 30.3 |
| | 2018 | * | - | 3.0 | 3.0 | 0 | - | 29.4 | 29.4 | 0 | - | 32.4 | 32.4 |
| | 2019 | * | - | 4.4 | 4.4 | 0 | - | 35.4 | 35.4 | 0 | - | 39.8 | 39.8 |

Continued on next page.

Table 10: Continued

| | Year | Catcher Vessels | | | | Catcher Processors | | | | Total | | | |
|----------------------|------|---------------------|-----|-------|-------------|---------------------|-----|-------|-------------|---------------------|-----|---------|-------------|
| | | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear |
| Northern Rockfish | 2015 | - | - | 0.2 | 0.2 | 0 | - | 6.5 | 6.5 | 0 | - | 6.7 | 6.7 |
| | 2016 | * | - | 0.2 | 0.2 | 0 | - | 4.0 | 4.0 | 0 | - | 4.2 | 4.2 |
| | 2017 | - | - | 0.2 | 0.2 | 0 | - | 4.2 | 4.2 | 0 | - | 4.4 | 4.4 |
| | 2018 | * | - | 0.4 | 0.4 | 0 | - | 4.8 | 4.9 | 0 | - | 5.2 | 5.2 |
| | 2019 | - | - | 0.4 | 0.4 | * | - | 8.2 | 8.2 | * | - | 8.6 | 8.6 |
| Other Rockfish | 2015 | 0 | - | 0.1 | 0.1 | 0.1 | - | 0.6 | 0.7 | 0.1 | - | 0.7 | 0.8 |
| | 2016 | 0 | - | 0 | 0.1 | 0 | - | 0.7 | 0.7 | 0.1 | - | 0.7 | 0.8 |
| | 2017 | 0 | - | 0 | 0.1 | 0 | - | 0.7 | 0.8 | 0.1 | - | 0.8 | 0.8 |
| | 2018 | 0 | - | 0.1 | 0.1 | 0 | - | 1.0 | 1.0 | 0.1 | - | 1.0 | 1.1 |
| | 2019 | 0 | - | 0.1 | 0.1 | 0 | - | 1.3 | 1.3 | 0 | - | 1.3 | 1.4 |
| Other Groundfish | 2015 | 0 | - | 2.2 | 2.3 | 6.6 | - | 1.1 | 7.8 | 6.6 | - | 3.3 | 10.0 |
| | 2016 | 0 | - | 0.5 | 0.5 | 5.1 | - | 1.7 | 6.8 | 5.1 | - | 2.1 | 7.3 |
| | 2017 | * | - | 1.0 | 1.1 | 7.7 | - | 1.7 | 9.4 | 7.7 | - | 2.7 | 10.5 |
| | 2018 | 0 | - | 1.6 | 1.8 | 9.5 | - | 2.5 | 12.0 | 9.5 | - | 4.2 | 13.8 |
| | 2019 | 0 | - | 0.5 | 0.7 | 6.3 | - | 2.7 | 9.1 | 6.4 | - | 3.2 | 9.7 |
| All Groundfish | 2015 | 1.2 | - | 745.2 | 776.5 | 142.3 | - | 934.2 | 1,084.5 | 143.4 | - | 1,679.4 | 1,860.9 |
| | 2016 | 0.3 | - | 771.8 | 811.6 | 138.9 | - | 953.9 | 1,100.4 | 139.2 | - | 1,725.7 | 1,912.1 |
| | 2017 | 0.3 | - | 784.2 | 827.8 | 139.6 | - | 938.4 | 1,083.9 | 139.9 | - | 1,722.7 | 1,911.7 |
| | 2018 | 1.2 | - | 785.2 | 829.2 | 116.3 | - | 959.0 | 1,079.5 | 117.4 | - | 1,744.2 | 1,908.7 |
| | 2019 | 1.4 | - | 801.0 | 846.1 | 101.3 | - | 960.6 | 1,066.1 | 102.7 | - | 1,761.6 | 1,912.2 |

Notes: The estimates are of retained catch (i.e., excludes discarded catch). All groundfish include additional species categories. These estimates include only catch counted against federal TACs. Includes FMP groundfish catch on halibut targets. "*" indicates a confidential value; "-" indicates no applicable data or value.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 11: Bering Sea & Aleutian Islands groundfish retained catch by species, gear, and target fishery, 2018-2019, (1,000 metric tons, round weight).

| | Target | Pollock | Sablefish | Pacific Cod | Arrowtooth | Kamchatka Flounder | Flathead Sole | Rock Sole | Turbot | Yellowfin | Flat Other | Rockfish | Atka Mackerel | Other | All Species |
|---------------|--------------------|-------------|-----------|-------------|------------|--------------------|---------------|-----------|--------|-----------|------------|----------|---------------|-------|-------------|
| Hook and Line | Catcher Processors | Sablefish | - | 0 | - | * | - | - | * | - | - | 0 | - | - | 0 |
| | | Pacific Cod | 5.3 | 0 | 100.8 | 0.1 | 0 | * | 0.1 | 0.2 | * | 0 | 0 | 9.5 | 116.0 |
| | | Turbot | * | 0 | * | * | - | - | 0.2 | - | * | 0 | - | * | 0.2 |
| | | Rockfish | * | * | - | * | - | - | * | - | - | 0 | - | - | 0 |
| | | Halibut | - | - | * | - | - | - | - | - | - | - | - | - | * |
| | | All Targets | 5.3 | 0.1 | 100.9 | 0.1 | 0 | * | 0.3 | 0.2 | * | 0 | 0 | 9.5 | 116.3 |
| | 2019 | Sablefish | * | * | - | * | * | - | * | - | - | * | - | - | * |
| | | Pacific Cod | 5.7 | 0 | 88.6 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | * | 6.3 | 100.8 |
| | | Arrowtooth | - | - | - | * | * | - | * | - | - | * | - | - | * |
| | | Turbot | * | * | * | * | - | - | 0.5 | - | - | 0 | - | 0 | 0.5 |
| | | Rockfish | * | * | - | - | * | - | * | - | - | * | - | - | * |
| | | Halibut | - | - | * | - | - | - | - | - | - | - | - | - | * |
| Pot | Catcher Vessels | All Targets | 5.7 | 0 | 88.6 | 0.1 | 0 | 0 | 0.5 | 0 | 0 | 0 | * | 6.3 | 101.3 |
| | | Sablefish | - | 0.1 | * | - | - | - | - | - | - | 0 | - | - | 0.1 |
| | | Pacific Cod | * | * | 0.9 | 0 | - | * | - | - | - | 0 | - | * | 0.9 |
| | | Halibut | - | 0.1 | 0 | * | - | - | - | - | - | 0 | - | 0 | 0.2 |
| | | All Targets | * | 0.2 | 0.9 | 0 | - | * | - | - | - | 0 | - | 0 | 1.2 |
| | | Sablefish | - | 0.1 | * | - | - | - | - | - | - | * | - | - | 0.1 |
| | 2019 | Pacific Cod | * | * | 1.1 | - | * | * | - | - | - | * | - | 0 | 1.2 |
| | | Halibut | - | 0.1 | 0 | - | - | - | * | - | - | 0 | - | 0 | 0.2 |
| | | All Targets | * | 0.2 | 1.2 | - | * | * | * | - | - | 0 | - | 0 | 1.4 |
| | Catcher Processors | Sablefish | - | * | * | * | * | - | - | - | - | - | - | - | * |
| | | Pacific Cod | * | - | 4.3 | - | - | - | - | * | - | * | * | * | 4.3 |
| | | All Targets | * | * | 4.3 | * | * | - | - | * | - | * | * | * | 4.3 |
| | | Sablefish | * | * | * | * | * | - | * | - | - | * | - | - | * |
| | | Pacific Cod | 0 | * | 4.2 | - | - | - | - | - | - | - | - | * | 4.2 |
| | | All Targets | 0 | * | 4.2 | * | * | - | * | - | - | * | - | * | 4.2 |
| Pot | Catcher Vessels | Sablefish | - | 0.3 | - | - | - | - | - | - | - | * | - | * | 0.3 |
| | | Pacific Cod | 0 | * | 42.2 | 0 | 0 | 0 | - | 0.1 | 0 | 0 | 0 | 0.2 | 42.5 |
| | | All Targets | 0 | 0.3 | 42.2 | 0 | 0 | 0 | - | 0.1 | 0 | 0 | 0 | 0.2 | 42.8 |
| | | Sablefish | - | 0.5 | - | - | - | - | - | - | - | - | - | - | 0.5 |
| | | Pacific Cod | 0 | * | 43.1 | * | 0 | 0 | - | 0 | 0 | 0 | 0 | 0.1 | 43.2 |
| | | All Targets | 0 | 0.5 | 43.1 | * | 0 | 0 | - | 0 | 0 | 0 | 0 | 0.1 | 43.7 |

Continued on next page.

Table 11: Continued

| | Target | Pollock | Sablefish | Pacific Cod | Arrowtooth | Kamchatka Flounder | Flathead Sole | Rock Sole | Turbot | Yellowfin | Flat Other | Rockfish | Atka Mackerel | Other | All Species |
|-------|--------------------|---------|-----------|-------------|------------|--------------------|---------------|-----------|--------|-----------|------------|----------|---------------|-------|-------------|
| Trawl | Pollock, Bottom | 8.9 | * | 0.2 | 0.1 | 0 | 0.1 | 0.1 | * | 0.4 | 0.1 | 0.7 | 0 | 0 | 10.6 |
| | Pollock, Pelagic | 607.5 | 0 | 1.7 | 0.1 | 0 | 0.4 | 0.5 | 0 | 0.2 | 0 | 0.7 | 0 | 0.4 | 611.6 |
| | Sablefish | 0.1 | 0.4 | 0 | 0.1 | 0.1 | 0 | * | 0 | - | 0 | 0 | - | * | 0.6 |
| | Pacific Cod | 1.0 | - | 6.8 | 0 | 0 | 0 | 1.8 | - | 0.1 | 0 | 0 | * | 0.1 | 9.9 |
| | 2018 Arrowtooth | 0.1 | 0 | 0 | 0.4 | 0.1 | 0.1 | 0 | 0.1 | 0 | 0 | 0 | * | 0 | 0.9 |
| | Kamchatka Flounder | 0.1 | 0 | 0 | 0.4 | 1.3 | 0 | * | 0.2 | * | 0 | 0.1 | * | * | 2.1 |
| | Flathead Sole | 1.9 | - | 1.3 | 0.9 | 0 | 4.4 | 0.9 | 0 | 3.2 | 0.5 | * | * | 0.2 | 13.4 |
| | Rock Sole | 4.5 | * | 5.3 | 0.2 | 0 | 0.4 | 13.7 | - | 13.1 | 4.1 | * | - | 0.2 | 41.5 |
| | Turbot | 0.2 | * | 0 | 0.2 | 0.4 | 0.2 | - | 1.1 | * | 0.1 | 0.2 | - | 0 | 2.3 |
| | Yellowfin | 19.6 | * | 11.3 | 2.6 | 0.2 | 3.7 | 8.4 | 0 | 96.8 | 12.9 | * | * | 1.2 | 156.6 |
| | Other | 0.4 | * | 0.4 | 0.1 | 0 | 0 | 0.1 | 0 | 1.1 | 2.8 | 0 | - | 0 | 4.9 |
| | Flatfish | | | | | | | | | | | | | | |
| | Rockfish | 1.4 | 0.1 | 0.5 | 0.2 | 0.3 | 0.1 | 0 | 0.1 | 0 | 0 | 21.2 | 5.2 | 0.1 | 29.2 |
| | Atka Mackerel | 0.6 | 0.1 | 2.8 | 0.3 | 0.4 | 0 | 0.1 | 0 | 0 | 0 | 12.3 | 58.6 | 0.4 | 75.6 |
| | All Targets | 646.2 | 0.6 | 30.3 | 5.6 | 2.8 | 9.4 | 25.6 | 1.5 | 114.9 | 20.5 | 35.2 | 63.8 | 2.5 | 959.0 |
| | Pollock, Bottom | 22.2 | 0 | 0.3 | 0.1 | 0 | 0.1 | 0.1 | 0 | 0.3 | 0.1 | 2.4 | 0.1 | 0 | 25.8 |
| | Pollock, Pelagic | 610.5 | 0 | 2.6 | 0.1 | 0 | 0.5 | 0.6 | 0 | 0.1 | 0.1 | 1.3 | 0 | 0.1 | 615.9 |
| | Sablefish | * | * | - | * | * | * | - | * | * | * | * | - | * | * |
| | Pacific Cod | 0.3 | - | 2.8 | 0.2 | 0 | 0.1 | 0.5 | * | 0.2 | 0 | * | * | 0 | 4.0 |
| | 2019 Arrowtooth | 0.2 | 0 | 0.1 | 1.1 | 0.3 | 0.1 | 0 | 0.2 | 0 | 0 | 0.1 | * | 0.1 | 2.2 |
| | Kamchatka Flounder | 0.1 | 0.1 | 0 | 0.4 | 1.3 | 0.1 | 0 | 0.3 | * | 0 | 0.3 | 0.1 | 0 | 2.8 |
| | Flathead Sole | 4.5 | * | 2.7 | 2.7 | 0.4 | 8.3 | 1.3 | 0.2 | 5.2 | 1.2 | 0.1 | * | 0.5 | 26.9 |
| | Rock Sole | 2.6 | - | 4.2 | 0.3 | 0 | 0.5 | 11.8 | - | 8.4 | 1.3 | * | * | 0.2 | 29.4 |
| | Turbot | 0.2 | 0 | 0 | 0.2 | 0.8 | 0.5 | * | 1.3 | * | 0.2 | 0.3 | - | 0 | 3.7 |
| | Yellowfin | 17.1 | - | 9.8 | 2.6 | 0.2 | 3.7 | 7.5 | 0 | 94.1 | 10.6 | 0 | 0 | 1.4 | 147.0 |
| | Other | | | | | | | | | | | | | | |
| | Flatfish | 0.3 | 0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0 | 0.2 | 0.5 | 0 | - | 0 | 1.5 |
| | Rockfish | 1.9 | 0.2 | 0.9 | 0.4 | 0.4 | 0.1 | 0 | 0.1 | 0 | 0.1 | 29.4 | 7.9 | 0.1 | 41.6 |
| | Atka Mackerel | 0.5 | 0 | 2.0 | 0.1 | 0.4 | 0 | 0.1 | 0 | * | 0 | 10.8 | 45.3 | 0.3 | 59.6 |
| | All Targets | 660.5 | 0.4 | 25.5 | 8.2 | 4.1 | 14.0 | 22.0 | 2.2 | 108.5 | 14.3 | 44.8 | 53.3 | 2.7 | 960.6 |

Continued on next page.

Table 11: Continued

| | | Target | Pollock | Sablefish | Pacific Cod | Arrowtooth | Kamchatka Flounder | Flathead Sole | Rock Sole | Turbot | Yellowfin | Flat Other | Rockfish | Atka Mackerel | Other | All Species |
|----------|--------------------|---------------------|---------|-----------|----------------|------------|-----------------------|------------------|-----------|--------|-----------|------------|----------|------------------|-------|-------------|
| Trawl | Catcher Vessels | Pollock, Bottom | 11.6 | 0 | 0.1 | 0 | * | 0 | 0 | 0 | * | 0 | 0.3 | 0.3 | 0.2 | 12.5 |
| | | Pollock, Pelagic | 704.7 | 0.3 | 2.2 | 0.1 | 0 | 0.4 | 0.3 | 0 | 0.1 | 0.1 | 0.8 | 0.2 | 1.1 | 710.2 |
| | | 2018 Pacific Cod | 0.4 | * | 35.0 | 0 | 0 | 0 | 0.1 | - | 0 | 0 | 0 | * | 0.1 | 35.7 |
| | | Flathead Sole | 0.1 | - | 0.1 | * | * | 0.1 | 0.1 | - | 0.4 | 0.1 | - | - | 0.1 | 1.0 |
| | | Rock Sole | 0.1 | - | 0.1 | - | - | * | 0.2 | - | 0.3 | 0.1 | - | - | * | 0.7 |
| | | Yellowfin | 1.3 | - | 1.2 | 0.1 | 0 | 0.2 | 0.8 | * | 11.4 | 1.2 | - | - | 0.1 | 16.2 |
| | | Other Flatfish | 0 | - | 0 | - | - | * | 0 | - | 0.1 | 0.1 | - | - | * | 0.2 |
| | | Rockfish | 0 | * | 0.1 | 0 | 0 | * | * | * | - | * | 1.7 | 0.3 | * | 2.1 |
| | | Atka Mackerel | 0.1 | * | 0.6 | 0 | 0 | * | 0 | * | - | * | 0.7 | 4.9 | 0.1 | 6.4 |
| | | All Targets | 718.3 | 0.3 | 39.3 | 0.2 | 0 | 0.8 | 1.6 | 0 | 12.2 | 1.7 | 3.5 | 5.6 | 1.6 | 785.2 |
| | 2019 | Pollock, Bottom | 11.3 | 0.1 | 0.2 | 0 | * | 0 | 0 | * | 0 | 0 | 0.6 | 0.1 | 0 | 12.3 |
| | | Pollock, Pelagic | 721.7 | 0.7 | 3.1 | 0.1 | 0 | 0.3 | 0.1 | 0 | 0 | 0.1 | 1.4 | 0.1 | 0.2 | 727.8 |
| | | 2019 Pacific Cod | 0.6 | * | 27.5 | 0.1 | 0 | 0.1 | 0.2 | * | 0.2 | 0.1 | 0 | * | 0.1 | 28.8 |
| | | Flathead Sole | 0.1 | - | 0.1 | 0.1 | * | 0.1 | 0 | * | 0.1 | 0 | - | - | * | 0.5 |
| | | Rock Sole | 0.1 | - | 0.2 | * | - | 0 | 0.8 | - | 1.2 | 0.3 | - | - | 0 | 2.5 |
| | | Yellowfin | 1.7 | - | 1.7 | 0.2 | 0 | 0.4 | 1.1 | - | 15.1 | 1.8 | * | - | 0.3 | 22.3 |
| | | Other Flatfish | * | - | * | * | * | * | * | - | * | * | - | - | * | * |
| | | Rockfish | 0.1 | 0 | 0.3 | 0 | 0.1 | * | 0 | * | - | 0 | 2.7 | 0.7 | * | 4.0 |
| | | Atka Mackerel | 0 | 0 | 0.2 | * | * | - | 0 | - | - | - | 0.2 | 2.3 | 0 | 2.7 |
| | | All Targets | 735.6 | 0.8 | 33.2 | 0.6 | 0.1 | 0.8 | 2.3 | 0 | 16.6 | 2.4 | 4.9 | 3.3 | 0.5 | 801.0 |
| All Gear | Catch Proc. | 2018 All Targets | 651.4 | 0.7 | 135.5 | 5.7 | 2.8 | 9.4 | 25.6 | 1.7 | 115.0 | 20.5 | 35.3 | 63.9 | 12.0 | 1,079.5 |
| | | 2019 All Targets | 666.2 | 0.4 | 118.2 | 8.3 | 4.1 | 14.1 | 22.0 | 2.8 | 108.5 | 14.3 | 44.9 | 53.3 | 9.1 | 1,066.1 |
| | Catch Vess. | 2018 All Targets | 718.3 | 0.8 | 82.5 | 0.2 | 0 | 0.8 | 1.6 | 0 | 12.3 | 1.7 | 3.5 | 5.7 | 1.8 | 829.2 |
| | | 2019 All Targets | 735.6 | 1.6 | 77.5 | 0.6 | 0.1 | 0.8 | 2.3 | 0 | 16.6 | 2.4 | 4.9 | 3.3 | 0.7 | 846.1 |

Notes: Totals may include additional categories. The target is derived from an algorithm used to determine preponderance of catch, accounting for processor, trip, processing mode, NMFS area, and gear. These estimates include only catch counted against federal TACs. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 12: Bering Sea & Aleutian Islands ex-vessel prices in the groundfish fisheries by gear, and species, 2015-2019; calculations based on COAR (\$/lb, round weight).

| | Year | Shoreside | | | At Sea | | | All Sectors | | |
|---------------|------|-----------|-------|----------|--------|-------|----------|-------------|-------|----------|
| | | Fixed | Trawl | All Gear | Fixed | Trawl | All Gear | Fixed | Trawl | All Gear |
| Pollock | 2015 | 0.170 | 0.154 | 0.154 | 0.170 | 0.134 | 0.134 | 0.170 | 0.142 | 0.143 |
| | 2016 | 0.134 | 0.139 | 0.139 | 0.020 | 0.117 | 0.117 | 0.020 | 0.127 | 0.126 |
| | 2017 | 0.015 | 0.137 | 0.137 | 0.015 | 0.105 | 0.104 | 0.015 | 0.119 | 0.118 |
| | 2018 | 0.145 | 0.156 | 0.156 | 0.145 | 0.119 | 0.119 | 0.145 | 0.135 | 0.135 |
| | 2019 | 0.157 | 0.167 | 0.167 | 0.157 | 0.128 | 0.128 | 0.157 | 0.145 | 0.145 |
| Pacific Cod | 2015 | 0.262 | 0.234 | 0.248 | 0.297 | 0.232 | 0.282 | 0.290 | 0.233 | 0.273 |
| | 2016 | 0.278 | 0.249 | 0.264 | 0.292 | 0.246 | 0.280 | 0.288 | 0.247 | 0.275 |
| | 2017 | 0.332 | 0.294 | 0.316 | 0.340 | 0.283 | 0.326 | 0.338 | 0.288 | 0.323 |
| | 2018 | 0.410 | 0.383 | 0.399 | 0.437 | 0.349 | 0.413 | 0.429 | 0.364 | 0.408 |
| | 2019 | 0.443 | 0.369 | 0.418 | 0.478 | 0.351 | 0.443 | 0.467 | 0.358 | 0.434 |
| Sablefish | 2015 | 3.720 | 1.277 | 3.720 | 3.720 | 1.277 | 3.268 | 3.720 | 1.277 | 3.613 |
| | 2016 | 4.010 | 1.193 | 3.976 | 4.010 | 1.193 | 2.032 | 4.010 | 1.193 | 3.017 |
| | 2017 | 3.980 | 1.172 | 3.769 | 3.980 | 1.172 | 1.875 | 3.980 | 1.172 | 2.741 |
| | 2018 | 2.121 | 0.809 | 1.690 | 2.121 | 0.809 | 1.276 | 2.121 | 0.809 | 1.467 |
| | 2019 | 1.915 | 0.751 | 1.297 | 1.915 | 0.751 | 1.019 | 1.915 | 0.751 | 1.214 |
| Atka Mackerel | 2015 | 0.279 | 0.257 | 0.257 | * | 0.257 | 0.257 | 0.279 | 0.257 | 0.257 |
| | 2016 | 0.016 | 0.253 | 0.243 | * | 0.253 | 0.253 | 0.016 | 0.253 | 0.253 |
| | 2017 | 0.015 | 0.356 | 0.352 | 0.015 | 0.356 | 0.356 | 0.015 | 0.356 | 0.356 |
| | 2018 | 0.203 | 0.348 | 0.347 | 0.203 | 0.348 | 0.348 | 0.203 | 0.348 | 0.348 |
| | 2019 | 0.015 | 0.283 | 0.283 | * | 0.283 | 0.283 | 0.015 | 0.283 | 0.283 |
| Yellowfin | 2015 | 0.003 | 0.129 | 0.129 | 0.003 | 0.129 | 0.129 | 0.003 | 0.129 | 0.129 |
| | 2016 | 0.014 | 0.147 | 0.139 | * | 0.147 | 0.147 | 0.014 | 0.147 | 0.147 |
| | 2017 | 0.015 | 0.176 | 0.156 | 0.015 | 0.176 | 0.176 | 0.015 | 0.176 | 0.176 |
| | 2018 | 0.015 | 0.216 | 0.175 | 0.015 | 0.216 | 0.216 | 0.015 | 0.216 | 0.216 |
| | 2019 | 0.015 | 0.206 | 0.094 | 0.015 | 0.206 | 0.206 | 0.015 | 0.206 | 0.206 |
| Rock Sole | 2015 | * | 0.146 | 0.146 | * | 0.146 | 0.146 | * | 0.146 | 0.146 |
| | 2016 | 0.113 | 0.167 | 0.167 | * | 0.167 | 0.167 | 0.113 | 0.167 | 0.167 |
| | 2017 | 0.015 | 0.194 | 0.194 | 0.015 | 0.194 | 0.194 | 0.015 | 0.194 | 0.194 |
| | 2018 | 0.015 | 0.237 | 0.237 | 0.015 | 0.237 | 0.237 | 0.015 | 0.237 | 0.237 |
| | 2019 | 0.015 | 0.221 | 0.221 | 0.015 | 0.221 | 0.221 | 0.015 | 0.221 | 0.221 |

Continued on next page.

Table 12: Continued

| | Year | Shoreside | | | At Sea | | | All Sectors | | |
|---------------------|------|-----------|-------|----------|--------|-------|----------|-------------|-------|----------|
| | | Fixed | Trawl | All Gear | Fixed | Trawl | All Gear | Fixed | Trawl | All Gear |
| Flathead Sole | 2015 | 0.015 | 0.148 | 0.148 | 0.003 | 0.148 | 0.147 | 0.004 | 0.148 | 0.147 |
| | 2016 | 0.113 | 0.194 | 0.193 | - | 0.193 | 0.193 | 0.113 | 0.193 | 0.193 |
| | 2017 | 0.015 | 0.221 | 0.220 | 0.015 | 0.221 | 0.221 | 0.015 | 0.221 | 0.221 |
| | 2018 | 0.016 | 0.255 | 0.254 | * | 0.255 | 0.255 | 0.016 | 0.255 | 0.254 |
| | 2019 | 0.015 | 0.222 | 0.220 | 0.015 | 0.222 | 0.222 | 0.015 | 0.222 | 0.222 |
| Arrowtooth | 2015 | * | 0.182 | 0.182 | 0.003 | 0.182 | 0.181 | 0.003 | 0.182 | 0.181 |
| | 2016 | 0.113 | 0.213 | 0.211 | 0.113 | 0.213 | 0.213 | 0.113 | 0.213 | 0.213 |
| | 2017 | * | 0.324 | 0.324 | 0.015 | 0.324 | 0.312 | 0.015 | 0.324 | 0.312 |
| | 2018 | 0.016 | 0.218 | 0.217 | 0.015 | 0.218 | 0.214 | 0.015 | 0.218 | 0.214 |
| | 2019 | * | 0.216 | 0.216 | 0.015 | 0.216 | 0.214 | 0.015 | 0.216 | 0.214 |
| Kamchatka Flounder | 2015 | - | * | * | 0.003 | 0.165 | 0.165 | 0.003 | 0.165 | 0.165 |
| | 2016 | - | - | - | 0.113 | 0.206 | 0.206 | 0.113 | 0.206 | 0.206 |
| | 2017 | - | - | - | 0.015 | 0.367 | 0.365 | 0.015 | 0.367 | 0.365 |
| | 2018 | - | * | * | 0.015 | 0.316 | 0.314 | 0.015 | 0.316 | 0.314 |
| | 2019 | - | * | * | 0.015 | 0.246 | 0.245 | 0.015 | 0.246 | 0.245 |
| Turbot | 2015 | * | 0.502 | 0.502 | 0.003 | 0.502 | 0.249 | 0.003 | 0.502 | 0.250 |
| | 2016 | * | 0.649 | 0.649 | 0.113 | 0.649 | 0.413 | 0.113 | 0.649 | 0.414 |
| | 2017 | - | 0.689 | 0.689 | 0.015 | 0.689 | 0.460 | 0.015 | 0.689 | 0.460 |
| | 2018 | - | 0.685 | 0.685 | 0.015 | 0.685 | 0.589 | 0.015 | 0.685 | 0.589 |
| | 2019 | * | 0.700 | 0.700 | 0.015 | 0.700 | 0.571 | 0.015 | 0.700 | 0.571 |
| Other Flatfish | 2015 | - | 0.415 | 0.415 | 0.003 | 0.135 | 0.135 | 0.003 | 0.137 | 0.137 |
| | 2016 | 0.113 | 0.366 | 0.364 | * | 0.145 | 0.145 | 0.113 | 0.146 | 0.146 |
| | 2017 | * | 0.406 | 0.406 | * | 0.229 | 0.229 | * | 0.229 | 0.229 |
| | 2018 | 0.015 | 0.208 | 0.204 | 0.015 | 0.169 | 0.169 | 0.015 | 0.169 | 0.169 |
| | 2019 | 0.015 | 0.580 | 0.551 | 0.015 | 0.188 | 0.188 | 0.015 | 0.191 | 0.191 |
| Pacific Ocean Perch | 2015 | * | 0.209 | 0.209 | 0.833 | 0.209 | 0.209 | 0.833 | 0.209 | 0.209 |
| | 2016 | 0.780 | 0.180 | 0.180 | * | 0.180 | 0.180 | 0.780 | 0.180 | 0.180 |
| | 2017 | * | 0.218 | 0.218 | 1.001 | 0.218 | 0.218 | 1.001 | 0.218 | 0.218 |
| | 2018 | * | 0.217 | 0.217 | 0.771 | 0.217 | 0.217 | 0.771 | 0.217 | 0.217 |
| | 2019 | 0.016 | 0.160 | 0.160 | 0.742 | 0.160 | 0.160 | 0.221 | 0.160 | 0.160 |

Continued on next page.

Table 12: Continued

| | Year | Shoreside | | | At Sea | | | All Sectors | | |
|-------------------|------|-----------|-------|----------|--------|-------|----------|-------------|-------|----------|
| | | Fixed | Trawl | All Gear | Fixed | Trawl | All Gear | Fixed | Trawl | All Gear |
| Northern Rockfish | 2015 | * | 0.149 | 0.149 | 0.833 | 0.149 | 0.149 | 0.833 | 0.149 | 0.149 |
| | 2016 | * | 0.127 | 0.127 | 0.780 | 0.127 | 0.127 | 0.780 | 0.127 | 0.127 |
| | 2017 | * | 0.152 | 0.152 | 1.001 | 0.152 | 0.153 | 1.001 | 0.152 | 0.153 |
| | 2018 | * | 0.156 | 0.156 | 0.771 | 0.156 | 0.157 | 0.771 | 0.156 | 0.157 |
| | 2019 | * | 0.137 | 0.137 | * | 0.137 | 0.137 | * | 0.137 | 0.137 |
| Other Rockfish | 2015 | 0.823 | 0.366 | 0.745 | 0.833 | 0.277 | 0.344 | 0.830 | 0.278 | 0.365 |
| | 2016 | 0.721 | 0.301 | 0.646 | 0.780 | 0.351 | 0.390 | 0.764 | 0.351 | 0.400 |
| | 2017 | 0.933 | 0.327 | 0.802 | 1.001 | 0.381 | 0.424 | 0.984 | 0.381 | 0.436 |
| | 2018 | 0.894 | 0.296 | 0.722 | 0.771 | 0.296 | 0.313 | 0.819 | 0.296 | 0.325 |
| | 2019 | 0.765 | 0.268 | 0.478 | 0.742 | 0.348 | 0.354 | 0.751 | 0.347 | 0.357 |
| Other Groundfish | 2015 | 0.154 | 0.122 | 0.122 | 0.154 | 0.049 | 0.136 | 0.154 | 0.093 | 0.133 |
| | 2016 | 0.280 | 0.150 | 0.171 | 0.280 | 0.017 | 0.213 | 0.280 | 0.042 | 0.210 |
| | 2017 | 0.306 | 0.207 | 0.217 | 0.306 | 0.015 | 0.246 | 0.306 | 0.067 | 0.243 |
| | 2018 | 0.324 | 0.181 | 0.198 | 0.324 | 0.024 | 0.253 | 0.324 | 0.072 | 0.248 |
| | 2019 | 0.451 | 0.087 | 0.248 | 0.451 | 0.027 | 0.313 | 0.451 | 0.031 | 0.311 |

Notes: Prices are for catch from both federal and state of Alaska fisheries. The ex-vessel price is calculated as value of landings divided by estimated or actual round weight. Prices for catch processed by an at-sea processor without a COAR buying record (e.g., from catcher processors) are set using the prices for the matching species (group), region and gear-types for which buying records exist shoreside. Trawl-caught sablefish, rockfish and flatfish in the BSAI and trawl-caught Atka mackerel in both the BSAI and the GOA are not well represented in the COAR buying records. A price was calculated for these categories from product-report prices; the price in this case is the value of the first wholesale products divided by the calculated round weight and multiplied by a constant 0.4, a coarse estimate of the value added by processing based. The “All Alaska/All gear” column is the average weighted by retained catch. Values are not adjusted for inflation. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 13: Bering Sea & Aleutian Islands ex-vessel value of the groundfish catch by vessel category, gear, and species, 2015-2019; calculations based on COAR (\$ millions).

| | Year | Catcher Vessel | | | | Catcher Processor | | | | All Sectors | | | |
|------------------|------|---------------------|-------|--------|-------------|---------------------|------|--------|-------------|---------------------|-------|--------|-------------|
| | | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear |
| Pollock | 2015 | - | - | 227.42 | 227.42 | - | - | 182.91 | 185.30 | - | - | 410.33 | 412.72 |
| | 2016 | - | - | 209.36 | 209.36 | - | - | 165.24 | 165.50 | - | - | 374.61 | 374.86 |
| | 2017 | - | - | 205.54 | 205.54 | - | - | 147.13 | 147.35 | - | - | 352.68 | 352.89 |
| | 2018 | - | - | 236.67 | 236.67 | - | - | 169.89 | 171.57 | - | - | 406.56 | 408.24 |
| | 2019 | - | - | 259.81 | 259.81 | - | - | 186.46 | 188.42 | - | - | 446.28 | 448.24 |
| Pacific Cod | 2015 | 0.45 | 17.31 | 16.33 | 34.10 | 83.66 | 5.22 | 20.84 | 109.72 | 84.12 | 22.53 | 37.17 | 143.82 |
| | 2016 | 0.04 | 24.16 | 20.42 | 44.62 | 81.58 | 4.89 | 25.20 | 111.67 | 81.62 | 29.05 | 45.62 | 156.29 |
| | 2017 | 0.08 | 31.63 | 22.28 | 53.98 | 93.25 | 4.38 | 26.36 | 123.99 | 93.33 | 36.01 | 48.64 | 177.98 |
| | 2018 | 0.84 | 38.16 | 26.00 | 65.00 | 97.20 | 4.12 | 29.90 | 131.22 | 98.04 | 42.28 | 55.90 | 196.22 |
| | 2019 | 1.16 | 42.04 | 19.06 | 62.26 | 93.51 | 4.44 | 27.29 | 125.24 | 94.67 | 46.48 | 46.35 | 187.50 |
| Sablefish | 2015 | 2.92 | 0.98 | 0 | 3.90 | 0.98 | - | 0.08 | 1.06 | 3.90 | 0.98 | 0.08 | 4.96 |
| | 2016 | 1.96 | * | 0.01 | 1.97 | 1.04 | - | 0.73 | 1.76 | 2.99 | * | 0.74 | 3.73 |
| | 2017 | 1.41 | * | 0.14 | 1.55 | 0.73 | * | 1.61 | 2.34 | 2.14 | * | 1.75 | 3.89 |
| | 2018 | 1.01 | 1.59 | 0.49 | 3.08 | 0.28 | * | 1.11 | 1.38 | 1.28 | 1.59 | 1.59 | 4.47 |
| | 2019 | 0.87 | 2.19 | 1.36 | 4.41 | 0.30 | * | 0.83 | 1.13 | 1.17 | 2.19 | 2.18 | 5.54 |
| Atka Mackerel | 2015 | - | - | 0.02 | 0.02 | - | - | 29.67 | 29.67 | - | - | 29.69 | 29.69 |
| | 2016 | - | - | 0.01 | 0.01 | - | - | 30.13 | 30.13 | - | - | 30.14 | 30.14 |
| | 2017 | - | - | 0.01 | 0.01 | - | - | 50.24 | 50.24 | - | - | 50.25 | 50.25 |
| | 2018 | - | - | 0.39 | 0.39 | - | - | 53.02 | 53.03 | - | - | 53.42 | 53.42 |
| | 2019 | - | - | 0.14 | 0.14 | - | - | 35.20 | 35.20 | - | - | 35.34 | 35.34 |
| Yellowfin | 2015 | - | - | 0.03 | 0.03 | 0 | - | 35.07 | 35.07 | 0 | - | 35.10 | 35.10 |
| | 2016 | - | - | 0.01 | 0.01 | * | - | 42.52 | 42.52 | * | - | 42.53 | 42.53 |
| | 2017 | - | - | 0.01 | 0.01 | 0 | - | 50.00 | 50.00 | 0 | - | 50.01 | 50.01 |
| | 2018 | - | - | 0.13 | 0.13 | 0.01 | - | 60.38 | 60.38 | 0.01 | - | 60.51 | 60.52 |
| | 2019 | - | - | 0.01 | 0.01 | 0 | - | 56.79 | 56.79 | 0 | - | 56.79 | 56.80 |
| Rock Sole | 2015 | - | - | 0.10 | 0.10 | * | - | 14.13 | 14.13 | * | - | 14.24 | 14.24 |
| | 2016 | - | - | 0.09 | 0.09 | * | - | 15.86 | 15.86 | * | - | 15.95 | 15.95 |
| | 2017 | - | - | 0.15 | 0.15 | 0 | - | 14.37 | 14.37 | 0 | - | 14.52 | 14.52 |
| | 2018 | * | - | 0.19 | 0.19 | 0 | - | 14.02 | 14.02 | 0 | - | 14.21 | 14.21 |
| | 2019 | * | - | 0.09 | 0.09 | 0 | - | 11.72 | 11.72 | 0 | - | 11.81 | 11.81 |

Continued on next page.

Table 13: Continued

| | Year | Catcher Vessel | | | | Catcher Processor | | | | All Sectors | | | |
|---------------------------|------|---------------------|-----|-------|-------------|---------------------|-----|-------|-------------|---------------------|-----|-------|-------------|
| | | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear |
| Flathead Sole | 2015 | - | - | 0.15 | 0.15 | 0 | - | 3.13 | 3.13 | 0 | - | 3.28 | 3.28 |
| | 2016 | - | - | 0.11 | 0.11 | - | - | 3.74 | 3.74 | - | - | 3.85 | 3.85 |
| | 2017 | - | - | 0.15 | 0.15 | 0 | - | 3.80 | 3.80 | 0 | - | 3.95 | 3.95 |
| | 2018 | - | - | 0.21 | 0.21 | * | - | 5.50 | 5.50 | * | - | 5.71 | 5.71 |
| | 2019 | * | - | 0.15 | 0.15 | 0 | - | 7.14 | 7.15 | 0 | - | 7.30 | 7.30 |
| Arrowtooth | 2015 | * | - | 0.03 | 0.03 | 0 | - | 3.73 | 3.73 | 0 | - | 3.76 | 3.76 |
| | 2016 | 0 | - | 0.02 | 0.02 | 0.01 | - | 4.19 | 4.20 | 0.01 | - | 4.21 | 4.22 |
| | 2017 | * | - | 0.04 | 0.04 | 0.01 | - | 3.82 | 3.83 | 0.01 | - | 3.86 | 3.87 |
| | 2018 | 0 | - | 0.05 | 0.05 | 0 | - | 2.73 | 2.74 | 0 | - | 2.78 | 2.78 |
| | 2019 | - | - | 0.06 | 0.06 | 0 | - | 4.15 | 4.16 | 0 | - | 4.21 | 4.22 |
| Kamchatka Flounder | 2015 | - | - | 0 | 0 | 0 | - | 1.68 | 1.68 | 0 | - | 1.68 | 1.68 |
| | 2016 | - | - | * | * | 0 | - | 2.06 | 2.06 | 0 | - | 2.06 | 2.06 |
| | 2017 | - | - | * | * | 0 | - | 3.41 | 3.41 | 0 | - | 3.41 | 3.41 |
| | 2018 | - | - | 0 | 0 | 0 | - | 1.99 | 1.99 | 0 | - | 1.99 | 1.99 |
| | 2019 | - | - | 0 | 0 | 0 | - | 2.26 | 2.26 | 0 | - | 2.26 | 2.26 |
| Turbot | 2015 | * | - | 0.01 | 0.01 | 0.01 | - | 1.13 | 1.14 | 0.01 | - | 1.14 | 1.15 |
| | 2016 | * | - | 0 | 0 | 0.24 | - | 1.73 | 1.96 | 0.24 | - | 1.73 | 1.97 |
| | 2017 | - | - | 0 | 0 | 0.03 | - | 2.74 | 2.77 | 0.03 | - | 2.74 | 2.77 |
| | 2018 | - | - | 0.01 | 0.01 | 0.01 | - | 2.27 | 2.28 | 0.01 | - | 2.28 | 2.29 |
| | 2019 | * | - | 0 | 0 | 0.02 | - | 3.49 | 3.51 | 0.02 | - | 3.49 | 3.51 |
| Other Flatfish | 2015 | - | - | 0.08 | 0.08 | 0 | - | 4.19 | 4.19 | 0 | - | 4.26 | 4.26 |
| | 2016 | - | - | 0.06 | 0.06 | * | - | 3.90 | 3.90 | * | - | 3.96 | 3.96 |
| | 2017 | - | - | 0.08 | 0.08 | * | - | 7.76 | 7.76 | * | - | 7.84 | 7.84 |
| | 2018 | - | - | 0.07 | 0.07 | 0 | - | 8.19 | 8.19 | 0 | - | 8.26 | 8.26 |
| | 2019 | - | - | 0.20 | 0.20 | 0 | - | 6.83 | 6.83 | 0 | - | 7.03 | 7.03 |
| Pacific Ocean Perch | 2015 | * | - | 0.33 | 0.33 | 0 | - | 13.50 | 13.50 | 0 | - | 13.84 | 13.84 |
| | 2016 | 0 | - | 0.25 | 0.25 | * | - | 11.78 | 11.78 | 0 | - | 12.03 | 12.03 |
| | 2017 | - | - | 0.31 | 0.31 | 0 | - | 14.24 | 14.24 | 0 | - | 14.56 | 14.56 |
| | 2018 | * | - | 0.54 | 0.54 | 0 | - | 14.98 | 14.98 | 0 | - | 15.52 | 15.52 |
| | 2019 | * | - | 0.68 | 0.68 | 0 | - | 13.34 | 13.34 | 0 | - | 14.01 | 14.01 |

Continued on next page.

Table 13: Continued

| | Year | Catcher Vessel | | | | Catcher Processor | | | | All Sectors | | | |
|-------------------|------|----------------|-----|--------|----------|-------------------|-----|--------|----------|---------------|-----|--------|----------|
| | | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear |
| Northern Rockfish | 2015 | - | - | 0.01 | 0.01 | 0 | - | 2.21 | 2.21 | 0 | - | 2.22 | 2.22 |
| | 2016 | * | - | 0 | 0 | 0 | - | 1.19 | 1.19 | 0 | - | 1.19 | 1.19 |
| | 2017 | - | - | 0 | 0 | 0.01 | - | 1.46 | 1.47 | 0.01 | - | 1.47 | 1.48 |
| | 2018 | * | - | 0.01 | 0.01 | 0.01 | - | 1.80 | 1.81 | 0.01 | - | 1.81 | 1.81 |
| | 2019 | - | - | 0.01 | 0.01 | * | - | 2.59 | 2.59 | * | - | 2.60 | 2.60 |
| Other Rockfish | 2015 | 0.06 | - | 0.01 | 0.07 | 0.17 | - | 0.41 | 0.57 | 0.23 | - | 0.41 | 0.65 |
| | 2016 | 0.04 | - | 0 | 0.05 | 0.13 | - | 0.59 | 0.72 | 0.17 | - | 0.60 | 0.77 |
| | 2017 | 0.04 | - | 0 | 0.05 | 0.13 | - | 0.68 | 0.82 | 0.18 | - | 0.69 | 0.86 |
| | 2018 | 0.04 | - | 0.01 | 0.05 | 0.06 | - | 0.68 | 0.74 | 0.11 | - | 0.68 | 0.80 |
| | 2019 | 0.02 | - | 0.01 | 0.04 | 0.03 | - | 1.04 | 1.07 | 0.06 | - | 1.05 | 1.11 |
| Other Groundfish | 2015 | 0 | - | 0.54 | 0.56 | 2.25 | - | 0.14 | 2.39 | 2.25 | - | 0.69 | 2.96 |
| | 2016 | 0 | - | 0.13 | 0.18 | 3.16 | - | 0.07 | 3.23 | 3.16 | - | 0.20 | 3.41 |
| | 2017 | * | - | 0.34 | 0.40 | 5.19 | - | 0.07 | 5.25 | 5.19 | - | 0.41 | 5.65 |
| | 2018 | 0 | - | 0.51 | 0.64 | 6.78 | - | 0.15 | 6.93 | 6.78 | - | 0.67 | 7.56 |
| | 2019 | 0.02 | - | 0.03 | 0.17 | 6.38 | - | 0.19 | 6.57 | 6.40 | - | 0.22 | 6.74 |
| All Species | 2015 | 3.44 | - | 245.07 | 266.82 | 89.46 | - | 312.82 | 407.50 | 92.89 | - | 557.89 | 674.32 |
| | 2016 | 2.05 | - | 230.50 | 256.75 | 86.41 | - | 308.91 | 400.21 | 88.46 | - | 539.41 | 656.96 |
| | 2017 | 1.54 | - | 229.06 | 262.28 | 99.57 | - | 327.70 | 431.65 | 101.10 | - | 556.75 | 693.92 |
| | 2018 | 1.89 | - | 265.28 | 307.05 | 106.03 | - | 366.60 | 476.75 | 107.92 | - | 631.88 | 783.80 |
| | 2019 | 2.06 | - | 281.61 | 328.02 | 102.22 | - | 359.32 | 465.97 | 104.28 | - | 640.93 | 793.99 |

Notes: Ex-vessel value is calculated by multiplying ex-vessel prices by the retained round weight catch. Refer to Table 12 for a description of the price derivation. The value added by at-sea processing is not included in these estimates of ex-vessel value. All groundfish includes additional species categories. Values are not adjusted for inflation. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 14: Bering Sea & Aleutian Islands vessel and permit counts, ex-vessel value, value per vessel, and percent value of BSAI FMP groundfish and all BSAI fisheries by fleet, 2015-2019; calculations based on COAR (\$ millions).

| | Year | Vessels | Permits | Ex-vessel Value Per Vessel \$1,000 | Ex-vessel Value \$million | Percent Value, BSAI FMP Groundfish | Percent Value, All BSAI Fisheries |
|---------------|------|---------|---------|---|---------------------------------|--|---|
| AFA CV | 2015 | 86 | 15 | 2,814.31 | 242.03 | 35.93 | 22.08 |
| | 2016 | 89 | 18 | 2,594.87 | 230.94 | 35.08 | 20.23 |
| | 2017 | 86 | 16 | 2,650.99 | 227.99 | 32.60 | 19.22 |
| | 2018 | 86 | 17 | 3,042.31 | 261.64 | 33.32 | 19.56 |
| | 2019 | 82 | 22 | 3,443.93 | 282.40 | 35.54 | 21.29 |
| AFA CP | 2015 | 17 | 17 | 10,984.64 | 186.74 | 27.72 | 17.04 |
| | 2016 | 16 | 16 | 10,178.79 | 162.86 | 24.74 | 14.27 |
| | 2017 | 16 | 16 | 9,909.07 | 158.55 | 22.67 | 13.36 |
| | 2018 | 15 | 15 | 10,999.72 | 165.00 | 21.01 | 12.34 |
| | 2019 | 16 | 16 | 11,937.93 | 191.01 | 24.03 | 14.40 |
| A80 | 2015 | 18 | 18 | 6,477.66 | 116.60 | 17.31 | 10.64 |
| | 2016 | 19 | 19 | 6,599.34 | 125.39 | 19.05 | 10.98 |
| | 2017 | 19 | 19 | 7,867.09 | 149.47 | 21.37 | 12.60 |
| | 2018 | 19 | 19 | 8,741.77 | 166.09 | 21.15 | 12.42 |
| | 2019 | 20 | 20 | 7,381.29 | 147.63 | 18.58 | 11.13 |
| BSAI Trawl | 2015 | 13 | 12 | 969.00 | 12.60 | 1.87 | 1.15 |
| | 2016 | 13 | 12 | 1,602.97 | 20.84 | 3.17 | 1.83 |
| | 2017 | 16 | 15 | 1,353.37 | 21.65 | 3.10 | 1.83 |
| | 2018 | 21 | 18 | 1,892.80 | 39.75 | 5.06 | 2.97 |
| | 2019 | 18 | 18 | 1,154.61 | 20.78 | 2.62 | 1.57 |

Continued on next page.

Table 14: Continued

| | Year | Vessels | Permits | Ex-vessel Value Per Vessel \$1,000 | Ex-vessel Value \$million | Percent Value, BSAI FMP Groundfish | Percent Value, All BSAI Fisheries |
|---------------------|------|---------|---------|---|---------------------------------|--|---|
| CV Hook and Line | 2015 | 5 | 5 | * | * | * | * |
| | 2016 | 1 | 1 | * | * | * | * |
| | 2017 | 5 | 4 | * | * | * | * |
| | 2018 | 7 | 6 | * | * | * | * |
| | 2019 | 8 | 6 | * | * | * | * |
| CP Hook and Line | 2015 | 30 | 30 | 2,950.16 | 88.50 | 13.14 | 8.08 |
| | 2016 | 31 | 31 | 2,755.96 | 85.43 | 12.98 | 7.48 |
| | 2017 | 28 | 28 | 3,536.34 | 99.02 | 14.16 | 8.35 |
| | 2018 | 25 | 25 | 4,239.21 | 105.98 | 13.50 | 7.92 |
| | 2019 | 23 | 23 | 4,438.82 | 102.09 | 12.85 | 7.70 |
| Sablefish IFQ | 2015 | 18 | 9 | 231.84 | 4.17 | 0.62 | 0.38 |
| | 2016 | 19 | 7 | 193.15 | 3.67 | 0.56 | 0.32 |
| | 2017 | 17 | 10 | 382.19 | 6.50 | 0.93 | 0.55 |
| | 2018 | 21 | 9 | 167.77 | 3.52 | 0.45 | 0.26 |
| | 2019 | 14 | 8 | 219.07 | 3.07 | 0.39 | 0.23 |
| Pot | 2015 | 48 | 18 | 469.93 | 22.56 | 3.35 | 2.06 |
| | 2016 | 56 | 17 | 519.72 | 29.10 | 4.42 | 2.55 |
| | 2017 | 64 | 17 | 563.56 | 36.07 | 5.16 | 3.04 |
| | 2018 | 78 | 17 | 543.57 | 42.40 | 5.40 | 3.17 |
| | 2019 | 83 | 17 | 561.37 | 46.59 | 5.86 | 3.51 |

Notes: These tables include the value of groundfish purchases reported by processing plants, as well as by other entities, such as markets and restaurants, that normally would not report sales of groundfish products. Keep this in mind when comparing ex-vessel values in this table to gross processed-product values. The data are for catch from both federal and state of Alaska fisheries. The category “BSAI Trawl” does not include trawl vessel in the other categories (e.g. “AFA CV”, “AFA CP”, “A80”), for example TLAS. The column “permits” is a count of federal groundfish processor permits. Values are not adjusted for inflation.

Source: ADF&G Commercial Operators Annual Reports (COAR); and ADF&G Intent to Operate (ITO) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 15: Bering Sea & Aleutian Islands production of groundfish products by species, 2015-2019, (1,000 metric tons product weight).

| | Product | 2015 | | | 2016 | | | 2017 | | | 2018 | | | 2019 | | |
|-------------|-------------------|--------|-----------|--------|--------|-----------|--------|--------|-----------|--------|--------|-----------|--------|--------|-----------|--------|
| | | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All |
| Pollock | Whole Fish | 1.11 | 0.68 | 1.80 | 0.10 | 0.69 | 0.79 | 0.04 | 0.25 | 0.30 | 0.01 | 0.27 | 0.28 | 0.15 | 0.22 | 0.37 |
| | Head And Gut | 25.38 | * | 25.38 | 28.61 | 0.04 | 28.65 | 24.21 | - | 24.21 | 21.47 | * | 21.47 | 17.68 | * | 17.68 |
| | Roe | 12.01 | 6.74 | 18.75 | 10.44 | 3.82 | 14.26 | 11.71 | 6.72 | 18.43 | 13.00 | 7.64 | 20.64 | 16.18 | 11.77 | 27.95 |
| | Deep-Skin Fillets | 34.56 | 9.22 | 43.77 | 38.24 | 8.55 | 46.79 | 45.10 | 13.03 | 58.13 | 40.96 | 15.75 | 56.72 | 39.34 | 18.81 | 58.15 |
| | Other Fillets | 57.44 | 65.80 | 123.24 | 49.61 | 64.89 | 114.50 | 42.13 | 56.69 | 98.82 | 53.94 | 56.97 | 110.91 | 66.04 | 62.60 | 128.63 |
| | Surimi | 95.94 | 91.80 | 187.74 | 100.51 | 90.31 | 190.82 | 102.60 | 94.13 | 196.73 | 104.36 | 92.16 | 196.53 | 104.67 | 87.57 | 192.24 |
| | Minced Fish | 19.71 | 5.47 | 25.19 | 22.38 | 11.69 | 34.07 | 17.05 | 9.44 | 26.49 | 13.06 | 7.35 | 20.41 | 12.25 | 7.35 | 19.59 |
| | Fishmeal | 26.45 | 34.59 | 61.03 | 27.15 | 36.25 | 63.40 | 27.94 | 34.69 | 62.63 | 28.22 | 38.36 | 66.58 | 30.51 | 39.33 | 69.84 |
| | Other Products | 12.60 | 21.44 | 34.04 | 14.52 | 27.09 | 41.61 | 13.32 | 24.88 | 38.20 | 13.97 | 24.93 | 38.90 | 16.34 | 27.13 | 43.47 |
| | All Products | 285.20 | 235.74 | 520.93 | 291.54 | 243.34 | 534.88 | 284.10 | 239.84 | 523.94 | 289.00 | 243.43 | 532.44 | 303.17 | 254.76 | 557.93 |
| Pacific Cod | Whole Fish | 0.12 | 0.39 | 0.51 | 1.36 | 0.43 | 1.79 | 0.22 | * | 0.22 | 0.16 | 0.15 | 0.32 | 0.01 | 0.28 | 0.29 |
| | Head And Gut | 84.84 | 15.98 | 100.82 | 84.44 | 14.24 | 98.68 | 80.09 | 12.28 | 92.38 | 66.10 | 12.94 | 79.04 | 58.78 | 11.47 | 70.25 |
| | Roe | 0.58 | 1.79 | 2.37 | 0.52 | 1.61 | 2.13 | 0.47 | 1.73 | 2.20 | 1.05 | 2.50 | 3.55 | 1.31 | 1.69 | 3.01 |
| | Fillets | 0.20 | 6.08 | 6.28 | 0.14 | 9.89 | 10.03 | 0.14 | 9.88 | 10.01 | 0.14 | 10.23 | 10.36 | 0.23 | 7.80 | 8.02 |
| | Other Products | 5.23 | 5.26 | 10.48 | 6.61 | 7.16 | 13.77 | 7.07 | 7.66 | 14.73 | 6.81 | 7.33 | 14.14 | 7.39 | 6.01 | 13.40 |
| | All Products | 90.97 | 29.49 | 120.47 | 93.06 | 33.34 | 126.40 | 87.99 | 31.55 | 119.54 | 74.26 | 33.15 | 107.41 | 67.72 | 27.25 | 94.97 |
| Sablefish | Head And Gut | 0.08 | 0.38 | 0.46 | 0.22 | 0.28 | 0.50 | 0.42 | 0.45 | 0.87 | 0.56 | 0.40 | 0.96 | 0.34 | 0.58 | 0.92 |
| | Other Products | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.05 | 0.04 | 0.08 | 0.09 | 0.03 | 0.13 | 0.04 | 0.02 | 0.05 |
| | All Products | 0.09 | 0.39 | 0.47 | 0.23 | 0.29 | 0.52 | 0.46 | 0.49 | 0.95 | 0.65 | 0.43 | 1.09 | 0.38 | 0.59 | 0.97 |

Continued on next page.

Table 15: Continued

| | Product | 2015 | | | 2016 | | | 2017 | | | 2018 | | | 2019 | | |
|---------------|----------------|--------|-----------|-------|--------|-----------|-------|--------|-----------|-------|--------|-----------|-------|--------|-----------|-------|
| | | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All |
| Atka Mackerel | Whole Fish | 3.31 | * | 3.31 | 2.13 | 0.01 | 2.14 | 6.40 | * | 6.40 | 6.62 | 0.29 | 6.91 | 0.47 | * | 0.47 |
| | Head And Gut | 29.09 | - | 29.09 | 30.53 | - | 30.53 | 35.45 | - | 35.45 | 36.21 | * | 36.21 | 32.82 | * | 32.82 |
| | Other Products | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.02 | 0.00 | 0.01 | 0.02 |
| | All Products | 32.40 | 0.00 | 32.40 | 32.66 | 0.01 | 32.67 | 41.85 | 0.00 | 41.85 | 42.83 | 0.30 | 43.13 | 33.29 | 0.01 | 33.30 |
| Yellowfin | Whole Fish | 7.18 | - | 7.18 | 9.76 | - | 9.76 | 9.23 | - | 9.23 | 6.88 | 0.20 | 7.08 | 4.88 | - | 4.88 |
| | Head And Gut | 66.73 | - | 66.73 | 68.36 | - | 68.36 | 67.77 | - | 67.77 | 69.59 | - | 69.59 | 70.31 | - | 70.31 |
| | Fillets | - | - | - | - | - | - | * | - | * | - | - | - | - | - | - |
| | Other Products | 0.08 | 0.01 | 0.09 | 0.16 | 0.01 | 0.16 | 0.09 | 0.00 | 0.10 | 0.05 | 0.02 | 0.08 | 0.04 | 0.00 | 0.04 |
| | All Products | 73.98 | 0.01 | 73.99 | 78.28 | 0.01 | 78.28 | 77.10 | 0.00 | 77.10 | 76.53 | 0.23 | 76.75 | 75.22 | 0.00 | 75.23 |
| Rock Sole | Whole Fish | 0.47 | - | 0.47 | 0.63 | * | 0.63 | 1.56 | * | 1.56 | 0.43 | 0.06 | 0.49 | 0.49 | * | 0.49 |
| | Head And Gut | 24.48 | - | 24.48 | 23.90 | - | 23.90 | 17.33 | - | 17.33 | 14.21 | * | 14.21 | 12.57 | - | 12.57 |
| | Fillets | 0.01 | - | 0.01 | * | - | * | * | * | * | 0.00 | - | 0.00 | - | * | * |
| | Other Products | 0.12 | 0.06 | 0.18 | 0.08 | 0.08 | 0.16 | 0.13 | 0.07 | 0.20 | 0.07 | 0.03 | 0.10 | 0.15 | 0.05 | 0.20 |
| | All Products | 25.08 | 0.06 | 25.13 | 24.61 | 0.08 | 24.69 | 19.02 | 0.07 | 19.09 | 14.72 | 0.08 | 14.80 | 13.22 | 0.05 | 13.27 |
| Flathead Sole | Whole Fish | 0.26 | 0.01 | 0.26 | 0.52 | * | 0.52 | 0.10 | * | 0.10 | 0.37 | 0.06 | 0.43 | 0.05 | - | 0.05 |
| | Head And Gut | 4.45 | - | 4.45 | 4.13 | - | 4.13 | 4.03 | - | 4.03 | 5.09 | * | 5.09 | 7.88 | - | 7.88 |
| | Fillets | 0.00 | - | 0.00 | - | - | - | - | - | - | * | * | * | - | - | - |
| | Other Products | 0.30 | 0.08 | 0.37 | 0.11 | 0.05 | 0.16 | 0.05 | 0.05 | 0.11 | 0.05 | 0.04 | 0.10 | 0.12 | 0.10 | 0.21 |
| | All Products | 5.00 | 0.09 | 5.09 | 4.75 | 0.05 | 4.80 | 4.19 | 0.05 | 4.25 | 5.52 | 0.10 | 5.62 | 8.04 | 0.10 | 8.14 |

Continued on next page.

Table 15: Continued

| | | 2015 | | | 2016 | | | 2017 | | | 2018 | | | 2019 | | |
|---------------------------|----------------|--------|-----------|-------|--------|-----------|-------|--------|-----------|-------|--------|-----------|-------|--------|-----------|-------|
| | Product | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All |
| Arrowtooth | Whole Fish | * | * | * | 0.25 | * | 0.25 | * | - | * | * | - | * | - | - | - |
| | Head And Gut | 4.73 | * | 4.73 | 4.39 | - | 4.39 | 3.46 | - | 3.46 | 2.92 | - | 2.92 | 4.86 | - | 4.86 |
| | Fillets | - | - | - | - | - | - | - | - | - | - | - | - | * | - | * |
| | Other Products | 0.03 | 0.03 | 0.06 | 0.01 | 0.02 | 0.03 | 0.01 | 0.02 | 0.03 | 0.01 | 0.04 | 0.05 | 0.02 | 0.05 | 0.07 |
| | All Products | 4.75 | 0.03 | 4.79 | 4.64 | 0.02 | 4.67 | 3.46 | 0.02 | 3.48 | 2.93 | 0.04 | 2.97 | 4.88 | 0.05 | 4.93 |
| Kamchatka Flounder | Whole Fish | - | - | - | * | - | * | - | - | - | - | - | - | - | - | - |
| | Head And Gut | 2.79 | - | 2.79 | 2.72 | - | 2.72 | 2.05 | - | 2.05 | 1.40 | - | 1.40 | 2.13 | - | 2.13 |
| | Fishmeal | 0.01 | - | 0.01 | 0.00 | - | 0.00 | 0.00 | - | 0.00 | 0.00 | - | 0.00 | 0.00 | * | 0.00 |
| | Other Products | - | - | - | - | - | - | - | - | - | * | - | * | - | - | - |
| | All Products | 2.80 | - | 2.80 | 2.72 | - | 2.72 | 2.05 | - | 2.05 | 1.40 | - | 1.40 | 2.13 | * | 2.13 |
| Turbot | Whole Fish | - | * | * | 0.03 | - | 0.03 | - | - | - | - | - | - | * | - | * |
| | Head And Gut | 1.19 | - | 1.19 | 1.29 | * | 1.29 | 1.75 | - | 1.75 | 1.19 | - | 1.19 | 1.92 | - | 1.92 |
| | Other Products | 0.43 | 0.00 | 0.43 | 0.51 | 0.00 | 0.51 | 0.68 | 0.00 | 0.68 | 0.42 | 0.00 | 0.42 | 0.74 | 0.00 | 0.74 |
| | All Products | 1.63 | 0.00 | 1.63 | 1.83 | 0.00 | 1.83 | 2.43 | 0.00 | 2.43 | 1.61 | 0.00 | 1.61 | 2.66 | 0.00 | 2.67 |
| Other Flatfish | Whole Fish | 2.37 | * | 2.37 | 2.05 | * | 2.05 | 1.33 | 0.04 | 1.37 | 0.36 | * | 0.36 | 0.61 | 0.06 | 0.67 |
| | Head And Gut | 5.73 | - | 5.73 | 4.79 | * | 4.79 | 7.11 | * | 7.11 | 11.55 | * | 11.55 | 8.75 | * | 8.75 |
| | Fillets | - | - | - | - | - | - | - | * | * | - | * | * | - | - | - |
| | Other Products | 0.01 | 0.02 | 0.02 | 0.02 | 0.01 | 0.03 | 0.01 | 0.01 | 0.02 | 0.04 | 0.01 | 0.05 | 0.38 | 0.02 | 0.40 |
| | All Products | 8.11 | 0.02 | 8.13 | 6.87 | 0.01 | 6.87 | 8.45 | 0.04 | 8.49 | 11.94 | 0.01 | 11.96 | 9.74 | 0.07 | 9.82 |
| Pacific Ocean Perch | Whole Fish | - | 0.37 | 0.37 | 0.31 | 0.43 | 0.74 | 0.41 | 0.41 | 0.82 | 2.08 | 0.13 | 2.21 | 0.67 | 0.39 | 1.06 |
| | Head And Gut | 14.90 | * | 14.90 | 14.15 | * | 14.15 | 13.82 | * | 13.82 | 14.17 | * | 14.17 | 17.31 | * | 17.31 |
| | Other Products | 0.09 | 0.07 | 0.16 | 0.21 | 0.02 | 0.23 | 0.27 | 0.03 | 0.30 | 0.19 | 0.06 | 0.25 | 0.66 | 0.20 | 0.86 |
| | All Products | 14.99 | 0.44 | 15.42 | 14.67 | 0.45 | 15.12 | 14.50 | 0.44 | 14.94 | 16.44 | 0.19 | 16.63 | 18.63 | 0.59 | 19.22 |

Continued on next page.

Table 15: Continued

| | | 2015 | | | 2016 | | | 2017 | | | 2018 | | | 2019 | | |
|-------------------|----------------|--------|-----------|------|--------|-----------|------|--------|-----------|------|--------|-----------|------|--------|-----------|------|
| | Product | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All |
| Northern Rockfish | Whole Fish | - | 0.01 | 0.01 | - | 0.00 | 0.00 | - | * | * | * | * | * | - | * | * |
| | Head And Gut | 3.59 | - | 3.59 | 1.96 | - | 1.96 | 2.03 | - | 2.03 | 2.26 | * | 2.26 | 3.89 | * | 3.89 |
| | Other Products | 0.01 | 0.00 | 0.01 | 0.01 | 0.00 | 0.01 | 0.00 | * | 0.00 | 0.00 | * | 0.00 | 0.01 | 0.00 | 0.01 |
| | All Products | 3.59 | 0.01 | 3.61 | 1.97 | 0.00 | 1.97 | 2.03 | * | 2.03 | 2.27 | * | 2.27 | 3.90 | 0.00 | 3.90 |
| Other Rockfish | Whole Fish | 0.10 | * | 0.10 | 0.15 | * | 0.15 | 0.17 | 0.00 | 0.18 | 0.15 | * | 0.15 | 0.42 | * | 0.42 |
| | Head And Gut | 0.25 | 0.02 | 0.27 | 0.29 | 0.02 | 0.30 | 0.27 | 0.01 | 0.28 | 0.35 | 0.01 | 0.36 | 0.27 | 0.01 | 0.28 |
| | Other Products | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.16 | 0.00 | 0.17 |
| | All Products | 0.35 | 0.03 | 0.38 | 0.44 | 0.02 | 0.46 | 0.45 | 0.02 | 0.46 | 0.50 | 0.01 | 0.51 | 0.86 | 0.01 | 0.87 |
| Other Groundfish | Whole Fish | * | 0.38 | 0.38 | 0.00 | 0.15 | 0.16 | * | 0.26 | 0.26 | 0.02 | 0.50 | 0.52 | 0.00 | 0.34 | 0.35 |
| | Head And Gut | 0.01 | * | 0.01 | 0.01 | - | 0.01 | 0.01 | * | 0.01 | 0.04 | 0.07 | 0.12 | 0.02 | 0.06 | 0.08 |
| | Roe | - | - | - | - | - | - | - | - | - | * | - | * | - | - | - |
| | Fillets | - | - | - | * | - | * | - | - | - | * | - | * | - | - | - |
| | Fishmeal | 0.05 | 0.48 | 0.53 | 0.05 | 0.15 | 0.19 | 0.06 | 0.17 | 0.23 | 0.04 | 0.07 | 0.12 | 0.17 | 0.60 | 0.77 |
| | Other Products | 2.06 | 0.31 | 2.37 | 1.79 | 0.02 | 1.81 | 2.40 | * | 2.40 | 3.42 | 0.02 | 3.44 | 2.65 | * | 2.65 |
| | All Products | 2.12 | 1.17 | 3.30 | 1.85 | 0.32 | 2.17 | 2.48 | 0.43 | 2.91 | 3.52 | 0.67 | 4.19 | 2.84 | 1.00 | 3.84 |

Continued on next page.

Table 15: Continued

| | Product | 2015 | | | 2016 | | | 2017 | | | 2018 | | | 2019 | | |
|-------------|-------------------|--------|-----------|--------|--------|-----------|--------|--------|-----------|--------|--------|-----------|--------|--------|-----------|--------|
| | | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All |
| All Species | Whole Fish | 14.90 | 1.84 | 16.75 | 17.29 | 1.71 | 19.00 | 19.48 | 0.97 | 20.45 | 17.09 | 1.66 | 18.75 | 7.76 | 1.29 | 9.05 |
| | Head And Gut | 268.25 | 16.38 | 284.64 | 269.77 | 14.58 | 284.36 | 259.81 | 12.75 | 272.56 | 247.12 | 13.42 | 260.54 | 239.53 | 12.12 | 251.64 |
| | Roe | 12.59 | 8.52 | 21.12 | 10.96 | 5.43 | 16.39 | 12.17 | 8.46 | 20.63 | 14.06 | 10.14 | 24.19 | 17.50 | 13.46 | 30.96 |
| | Fillets | 0.21 | 6.08 | 6.28 | 0.14 | 9.89 | 10.03 | 0.14 | 9.88 | 10.01 | 0.14 | 10.23 | 10.36 | 0.23 | 7.80 | 8.02 |
| | Deep-Skin Fillets | 34.56 | 9.22 | 43.77 | 38.24 | 8.55 | 46.79 | 45.10 | 13.03 | 58.13 | 40.96 | 15.75 | 56.72 | 39.34 | 18.81 | 58.15 |
| | Other Fillets | 57.44 | 65.80 | 123.24 | 49.61 | 64.89 | 114.50 | 42.13 | 56.69 | 98.82 | 53.94 | 56.97 | 110.91 | 66.04 | 62.60 | 128.63 |
| | Surimi | 95.94 | 91.80 | 187.74 | 100.51 | 90.31 | 190.82 | 102.60 | 94.13 | 196.73 | 104.36 | 92.16 | 196.53 | 104.67 | 87.57 | 192.24 |
| | Minced Fish | 19.71 | 5.47 | 25.19 | 22.38 | 11.69 | 34.07 | 17.05 | 9.44 | 26.49 | 13.06 | 7.35 | 20.41 | 12.25 | 7.35 | 19.59 |
| | Fishmeal | 26.50 | 35.07 | 61.57 | 27.20 | 36.40 | 63.60 | 28.01 | 34.86 | 62.87 | 28.26 | 38.43 | 66.70 | 30.68 | 39.93 | 70.62 |
| | Other Products | 20.97 | 27.28 | 48.25 | 24.03 | 34.48 | 58.51 | 24.09 | 32.76 | 56.85 | 25.13 | 32.55 | 57.68 | 28.70 | 33.60 | 62.30 |
| | All Products | 551.07 | 267.47 | 818.54 | 560.12 | 277.94 | 838.06 | 550.57 | 272.96 | 823.54 | 544.13 | 278.66 | 822.79 | 546.69 | 284.51 | 831.20 |

Notes: Total includes additional species not listed in the production details as well as confidential data from Tables 28 and 29. These estimates are for catch from both federal and state of Alaska fisheries. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 16: Bering Sea & Aleutian Islands gross value of groundfish products by species, 2015-2019, (\$ million).

| | Product | 2015 | | | 2016 | | | 2017 | | | 2018 | | | 2019 | | |
|-------------|-------------------|--------|-----------|---------|--------|-----------|---------|--------|-----------|---------|--------|-----------|---------|--------|-----------|---------|
| | | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All |
| Pollock | Whole Fish | 1.1 | 0.8 | 1.9 | 0.1 | 0.5 | 0.6 | 0.0 | 0.2 | 0.3 | 0.0 | 0.3 | 0.3 | 0.2 | 0.5 | 0.6 |
| | Head And Gut | 35.6 | * | 35.6 | 48.9 | 0.0 | 48.9 | 29.0 | - | 29.0 | 27.5 | * | 27.5 | 24.5 | * | 24.5 |
| | Roe | 69.9 | 24.8 | 94.7 | 72.4 | 17.1 | 89.4 | 85.9 | 31.0 | 116.9 | 90.5 | 40.9 | 131.4 | 89.9 | 42.3 | 132.2 |
| | Deep-Skin Fillets | 120.3 | 29.9 | 150.2 | 142.7 | 26.3 | 169.0 | 150.1 | 41.3 | 191.4 | 136.7 | 49.5 | 186.2 | 137.9 | 67.2 | 205.1 |
| | Other Fillets | 176.1 | 172.6 | 348.7 | 141.9 | 191.3 | 333.2 | 107.8 | 145.8 | 253.5 | 154.2 | 164.4 | 318.6 | 218.7 | 203.2 | 421.9 |
| | Surimi | 268.4 | 204.4 | 472.8 | 291.9 | 210.2 | 502.1 | 370.2 | 207.2 | 577.4 | 316.7 | 234.1 | 550.8 | 341.5 | 240.6 | 582.2 |
| | Minced Fish | 29.1 | 7.9 | 37.1 | 39.7 | 19.2 | 58.9 | 26.1 | 13.1 | 39.2 | 19.7 | 10.8 | 30.4 | 21.8 | 12.0 | 33.8 |
| | Fishmeal | 53.7 | 47.8 | 101.5 | 50.3 | 53.4 | 103.7 | 45.7 | 50.7 | 96.4 | 48.1 | 51.8 | 99.9 | 67.3 | 42.9 | 110.2 |
| | Other Products | 14.4 | 18.1 | 32.5 | 20.4 | 25.2 | 45.6 | 16.1 | 17.9 | 34.0 | 17.2 | 20.7 | 37.9 | 18.5 | 21.4 | 39.9 |
| | All Products | 768.7 | 506.3 | 1,275.0 | 808.3 | 543.2 | 1,351.5 | 830.8 | 507.3 | 1,338.1 | 810.5 | 572.6 | 1,383.1 | 920.3 | 630.2 | 1,550.5 |
| Pacific Cod | Whole Fish | 0.1 | 0.5 | 0.6 | 2.1 | 0.7 | 2.8 | 0.4 | * | 0.4 | 0.3 | 0.3 | 0.5 | 0.0 | 0.3 | 0.3 |
| | Head And Gut | 266.8 | 36.3 | 303.1 | 250.6 | 30.7 | 281.4 | 287.9 | 32.5 | 320.4 | 276.0 | 48.5 | 324.5 | 216.8 | 31.1 | 247.9 |
| | Roe | 0.8 | 3.0 | 3.8 | 0.6 | 2.3 | 2.8 | 0.6 | 2.7 | 3.4 | 2.5 | 7.2 | 9.7 | 2.3 | 3.4 | 5.7 |
| | Fillets | 0.5 | 36.4 | 36.9 | 0.4 | 74.1 | 74.5 | 0.5 | 81.2 | 81.7 | 0.9 | 93.3 | 94.2 | 1.6 | 67.6 | 69.2 |
| | Other Products | 11.1 | 9.5 | 20.5 | 15.0 | 11.8 | 26.9 | 13.6 | 15.2 | 28.7 | 11.8 | 18.0 | 29.8 | 11.3 | 12.1 | 23.4 |
| | All Products | 279.2 | 85.7 | 365.0 | 268.8 | 119.5 | 388.3 | 303.1 | 131.6 | 434.7 | 291.6 | 167.3 | 458.8 | 232.0 | 114.5 | 346.5 |
| Sablefish | Head And Gut | 1.5 | 6.2 | 7.8 | 3.0 | 4.9 | 7.9 | 4.7 | 7.2 | 11.9 | 4.2 | 5.0 | 9.3 | 2.3 | 4.7 | 7.0 |
| | Other Products | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.5 | 0.6 | 0.1 | 0.6 | 0.8 | 0.1 | 0.1 | 0.1 |
| | All Products | 1.6 | 6.3 | 7.8 | 3.0 | 5.0 | 8.0 | 4.8 | 7.7 | 12.5 | 4.4 | 5.7 | 10.0 | 2.4 | 4.8 | 7.1 |

Continued on next page.

Table 16: Continued

| | Product | 2015 | | | 2016 | | | 2017 | | | 2018 | | | 2019 | | |
|---------------|----------------|--------|-----------|------|--------|-----------|------|--------|-----------|-------|--------|-----------|-------|--------|-----------|-------|
| | | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All |
| Atka Mackerel | Whole Fish | 3.9 | * | 3.9 | 4.1 | 0.0 | 4.1 | 11.9 | * | 11.9 | 15.0 | 0.5 | 15.5 | 1.0 | * | 1.0 |
| | Head And Gut | 69.1 | - | 69.1 | 69.6 | - | 69.6 | 114.8 | - | 114.8 | 112.7 | * | 112.7 | 84.0 | * | 84.0 |
| | Other Products | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | All Products | 73.0 | 0.0 | 73.0 | 73.7 | 0.0 | 73.7 | 126.6 | 0.0 | 126.6 | 127.7 | 0.5 | 128.1 | 85.0 | 0.0 | 85.0 |
| | | | | | | | | | | | | | | | | |
| Yellowfin | Whole Fish | 7.0 | - | 7.0 | 10.6 | - | 10.6 | 12.4 | - | 12.4 | 10.8 | 0.3 | 11.1 | 6.9 | - | 6.9 |
| | Head And Gut | 71.2 | - | 71.2 | 83.3 | - | 83.3 | 98.2 | - | 98.2 | 125.4 | - | 125.4 | 121.9 | - | 121.9 |
| | Fillets | - | - | - | - | - | - | * | - | * | - | - | - | - | - | - |
| | Other Products | 0.2 | 0.0 | 0.2 | 0.3 | 0.0 | 0.3 | 0.2 | 0.0 | 0.2 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.1 |
| | All Products | 78.4 | 0.0 | 78.4 | 94.2 | 0.0 | 94.2 | 110.8 | 0.0 | 110.8 | 136.3 | 0.3 | 136.6 | 128.8 | 0.0 | 128.8 |
| | | | | | | | | | | | | | | | | |
| Rock Sole | Whole Fish | 0.5 | - | 0.5 | 0.8 | * | 0.8 | 2.0 | * | 2.0 | 0.7 | 0.1 | 0.8 | 1.0 | * | 1.0 |
| | Head And Gut | 29.4 | - | 29.4 | 33.0 | - | 33.0 | 28.0 | - | 28.0 | 28.2 | * | 28.2 | 23.2 | - | 23.2 |
| | Fillets | 0.0 | - | 0.0 | * | - | * | * | * | * | 0.0 | - | 0.0 | - | * | * |
| | Other Products | 0.2 | 0.1 | 0.3 | 0.1 | 0.1 | 0.3 | 0.2 | 0.1 | 0.3 | 0.1 | 0.0 | 0.2 | 0.2 | 0.1 | 0.3 |
| | All Products | 30.2 | 0.1 | 30.3 | 33.9 | 0.1 | 34.0 | 30.2 | 0.1 | 30.3 | 29.0 | 0.1 | 29.1 | 24.3 | 0.1 | 24.4 |
| | | | | | | | | | | | | | | | | |
| Flathead Sole | Whole Fish | 0.3 | 0.0 | 0.3 | 0.6 | * | 0.6 | 0.1 | * | 0.1 | 0.7 | 0.1 | 0.7 | 0.1 | - | 0.1 |
| | Head And Gut | 6.2 | - | 6.2 | 6.9 | - | 6.9 | 7.7 | - | 7.7 | 11.0 | * | 11.0 | 14.9 | - | 14.9 |
| | Fillets | 0.0 | - | 0.0 | - | - | - | - | - | - | * | * | * | - | - | - |
| | Other Products | 0.6 | 0.1 | 0.7 | 0.2 | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.3 |
| | All Products | 7.0 | 0.2 | 7.2 | 7.7 | 0.1 | 7.8 | 7.9 | 0.1 | 8.0 | 11.8 | 0.1 | 11.9 | 15.2 | 0.1 | 15.3 |

Continued on next page.

Table 16: Continued

| | | 2015 | | | 2016 | | | 2017 | | | 2018 | | | 2019 | | |
|---------------------|----------------|--------|-----------|------|--------|-----------|------|--------|-----------|------|--------|-----------|------|--------|-----------|------|
| | Product | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All |
| Arrowtooth | Whole Fish | * | * | * | 0.3 | * | 0.3 | * | - | * | * | - | * | - | - | - |
| | Head And Gut | 7.7 | * | 7.7 | 8.3 | - | 8.3 | 9.9 | - | 9.9 | 5.6 | - | 5.6 | 9.4 | - | 9.4 |
| | Fillets | - | - | - | - | - | - | - | - | - | - | - | - | * | - | * |
| | Other Products | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 |
| | All Products | 7.8 | 0.1 | 7.8 | 8.6 | 0.0 | 8.7 | 9.9 | 0.0 | 9.9 | 5.6 | 0.1 | 5.7 | 9.4 | 0.1 | 9.5 |
| Kamchatka Flounder | Whole Fish | - | - | - | * | - | * | - | - | - | - | - | - | - | - | - |
| | Head And Gut | 4.1 | - | 4.1 | 5.0 | - | 5.0 | 6.7 | - | 6.7 | 3.9 | - | 3.9 | 4.7 | - | 4.7 |
| | Fishmeal | 0.0 | - | 0.0 | 0.0 | - | 0.0 | 0.0 | - | 0.0 | 0.0 | - | 0.0 | 0.0 | * | 0.0 |
| | Other Products | - | - | - | - | - | - | - | - | - | * | - | * | - | - | - |
| | All Products | 4.1 | - | 4.1 | 5.0 | - | 5.0 | 6.7 | - | 6.7 | 3.9 | - | 3.9 | 4.7 | * | 4.7 |
| Turbot | Whole Fish | - | * | * | 0.1 | - | 0.1 | - | - | - | - | - | - | * | - | * |
| | Head And Gut | 5.3 | - | 5.3 | 7.2 | * | 7.2 | 9.3 | - | 9.3 | 6.4 | - | 6.4 | 10.7 | - | 10.7 |
| | Other Products | 1.6 | 0.0 | 1.6 | 2.0 | 0.0 | 2.0 | 2.2 | 0.0 | 2.2 | 1.0 | 0.0 | 1.0 | 1.7 | 0.0 | 1.7 |
| | All Products | 6.9 | 0.0 | 6.9 | 9.3 | 0.0 | 9.3 | 11.5 | 0.0 | 11.5 | 7.4 | 0.0 | 7.4 | 12.3 | 0.0 | 12.3 |
| Other Flatfish | Whole Fish | 2.7 | * | 2.7 | 2.7 | * | 2.7 | 2.3 | 0.1 | 2.4 | 0.5 | * | 0.5 | 1.7 | 0.2 | 1.9 |
| | Head And Gut | 5.8 | - | 5.8 | 5.0 | * | 5.0 | 12.7 | * | 12.7 | 16.4 | * | 16.4 | 12.5 | * | 12.5 |
| | Fillets | - | - | - | - | - | - | - | * | * | - | * | * | - | - | - |
| | Other Products | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.5 | 0.0 | 0.5 |
| | All Products | 8.4 | 0.0 | 8.5 | 7.7 | 0.0 | 7.7 | 15.0 | 0.1 | 15.2 | 17.0 | 0.0 | 17.0 | 14.6 | 0.2 | 14.8 |
| Pacific Ocean Perch | Whole Fish | - | 0.5 | 0.5 | 0.4 | 0.5 | 1.0 | 0.5 | 0.5 | 1.0 | 2.8 | 0.2 | 3.0 | 1.1 | 0.4 | 1.4 |
| | Head And Gut | 34.9 | * | 34.9 | 29.1 | * | 29.1 | 34.6 | * | 34.6 | 34.5 | * | 34.5 | 31.2 | * | 31.2 |
| | Other Products | 0.2 | 0.1 | 0.3 | 0.3 | 0.0 | 0.3 | 0.4 | 0.0 | 0.4 | 0.3 | 0.1 | 0.4 | 0.8 | 0.6 | 1.4 |
| | All Products | 35.1 | 0.6 | 35.7 | 29.8 | 0.6 | 30.3 | 35.5 | 0.5 | 36.1 | 37.6 | 0.3 | 37.9 | 33.0 | 1.0 | 34.0 |

Continued on next page.

Table 16: Continued

| | | 2015 | | | 2016 | | | 2017 | | | 2018 | | | 2019 | | |
|-------------------|----------------|--------|-----------|-----|--------|-----------|-----|--------|-----------|-----|--------|-----------|-----|--------|-----------|-----|
| | Product | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All |
| Northern Rockfish | Whole Fish | - | 0.0 | 0.0 | - | 0.0 | 0.0 | - | * | * | * | * | * | - | * | * |
| | Head And Gut | 5.9 | - | 5.9 | 2.8 | - | 2.8 | 3.4 | - | 3.4 | 3.9 | * | 3.9 | 5.9 | * | 5.9 |
| | Other Products | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | * | 0.0 | 0.0 | * | 0.0 | 0.0 | 0.0 | 0.0 |
| | All Products | 5.9 | 0.0 | 5.9 | 2.8 | 0.0 | 2.8 | 3.4 | * | 3.4 | 3.9 | * | 3.9 | 5.9 | 0.0 | 5.9 |
| Other Rockfish | Whole Fish | 0.4 | * | 0.4 | 0.7 | * | 0.7 | 0.9 | 0.0 | 0.9 | 0.6 | * | 0.6 | 1.6 | * | 1.6 |
| | Head And Gut | 0.6 | 0.2 | 0.8 | 0.7 | 0.1 | 0.8 | 0.7 | 0.1 | 0.7 | 0.9 | 0.0 | 0.9 | 0.8 | 0.0 | 0.8 |
| | Other Products | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.2 |
| | All Products | 1.0 | 0.2 | 1.2 | 1.4 | 0.1 | 1.5 | 1.6 | 0.1 | 1.6 | 1.4 | 0.0 | 1.5 | 2.6 | 0.1 | 2.6 |
| Other Groundfish | Whole Fish | * | 0.4 | 0.4 | 0.0 | 0.3 | 0.3 | * | 0.5 | 0.5 | 0.0 | 1.2 | 1.2 | 0.0 | 0.5 | 0.5 |
| | Head And Gut | 0.0 | * | 0.0 | 0.0 | - | 0.0 | 0.0 | * | 0.0 | 0.1 | 0.4 | 0.5 | 0.1 | 0.1 | 0.2 |
| | Roe | - | - | - | - | - | - | - | - | - | * | - | * | - | - | - |
| | Fillets | - | - | - | * | - | * | - | - | - | * | - | * | - | - | - |
| | Fishmeal | 0.1 | 0.9 | 1.0 | 0.1 | 0.2 | 0.3 | 0.1 | 0.3 | 0.4 | 0.1 | 0.1 | 0.2 | 0.2 | 0.8 | 1.0 |
| | Other Products | 3.9 | 1.1 | 5.1 | 2.8 | 0.2 | 3.0 | 4.5 | * | 4.5 | 7.6 | 0.1 | 7.7 | 5.2 | * | 5.2 |
| | All Products | 4.1 | 2.5 | 6.6 | 2.9 | 0.7 | 3.7 | 4.6 | 0.8 | 5.3 | 7.8 | 1.8 | 9.6 | 5.5 | 1.4 | 6.9 |

Continued on next page.

Table 16: Continued

| | Product | 2015 | | | 2016 | | | 2017 | | | 2018 | | | 2019 | | |
|-------------|-------------------|---------|-----------|---------|---------|-----------|---------|---------|-----------|---------|---------|-----------|---------|---------|-----------|---------|
| | | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All | At Sea | Shoreside | All |
| All Species | Whole Fish | 15.9 | 2.2 | 18.1 | 22.6 | 2.0 | 24.6 | 30.6 | 1.3 | 31.9 | 31.4 | 2.8 | 34.2 | 13.5 | 1.8 | 15.3 |
| | Head And Gut | 544.1 | 42.7 | 586.8 | 553.4 | 35.8 | 589.1 | 647.6 | 39.8 | 687.4 | 656.8 | 54.0 | 710.8 | 562.7 | 36.0 | 598.6 |
| | Roe | 70.7 | 27.8 | 98.5 | 72.9 | 19.3 | 92.3 | 86.6 | 33.7 | 120.3 | 93.0 | 48.1 | 141.2 | 92.2 | 45.7 | 137.9 |
| | Fillets | 0.6 | 36.4 | 37.0 | 0.4 | 74.1 | 74.5 | 0.5 | 81.2 | 81.7 | 0.9 | 93.3 | 94.2 | 1.6 | 67.6 | 69.2 |
| | Deep-Skin Fillets | 120.3 | 29.9 | 150.2 | 142.7 | 26.3 | 169.0 | 150.1 | 41.3 | 191.4 | 136.7 | 49.5 | 186.2 | 137.9 | 67.2 | 205.1 |
| | Other Fillets | 176.1 | 172.6 | 348.7 | 141.9 | 191.3 | 333.2 | 107.8 | 145.8 | 253.5 | 154.2 | 164.4 | 318.6 | 218.7 | 203.2 | 421.9 |
| | Surimi | 268.4 | 204.4 | 472.8 | 291.9 | 210.2 | 502.1 | 370.2 | 207.2 | 577.4 | 316.7 | 234.1 | 550.8 | 341.5 | 240.6 | 582.2 |
| | Minced Fish | 29.1 | 7.9 | 37.1 | 39.7 | 19.2 | 58.9 | 26.1 | 13.1 | 39.2 | 19.7 | 10.8 | 30.4 | 21.8 | 12.0 | 33.8 |
| | Fishmeal | 53.8 | 48.7 | 102.5 | 50.4 | 53.6 | 104.0 | 45.8 | 51.0 | 96.8 | 48.2 | 51.9 | 100.1 | 67.5 | 43.6 | 111.1 |
| | Other Products | 32.3 | 29.3 | 61.6 | 41.2 | 37.6 | 78.8 | 37.1 | 33.9 | 71.1 | 38.4 | 39.8 | 78.2 | 38.7 | 34.4 | 73.1 |
| | All Products | 1,311.3 | 602.0 | 1,913.3 | 1,357.1 | 669.4 | 2,026.5 | 1,502.3 | 648.4 | 2,150.7 | 1,495.9 | 748.7 | 2,244.7 | 1,496.1 | 752.3 | 2,248.4 |

Notes: Total includes additional species not listed in the production details as well as confidential data from Tables 28 and 29. These estimates are for catch from both federal and state of Alaska fisheries. Values are not adjusted for inflation. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 17: Bering Sea & Aleutian Islands price per pound of groundfish products by species and processing mode, 2015-2019, (\$/lb).

| | Product | 2015 | | 2016 | | 2017 | | 2018 | | 2019 | |
|---------------|-------------------|--------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|-----------|
| | | At-sea | Shoreside | At-sea | Shoreside | At-sea | Shoreside | At-sea | Shoreside | At-sea | Shoreside |
| Pollock | Whole Fish | 0.45 | 0.51 | 0.35 | 0.34 | 0.29 | 0.42 | 0.42 | 0.55 | 0.47 | 0.95 |
| | Head And Gut | 0.64 | * | 0.78 | 0.41 | 0.54 | - | 0.58 | * | 0.63 | * |
| | Roe | 2.64 | 1.67 | 3.14 | 2.03 | 3.33 | 2.09 | 3.16 | 2.43 | 2.52 | 1.63 |
| | Deep-Skin Fillets | 1.58 | 1.47 | 1.69 | 1.39 | 1.51 | 1.44 | 1.51 | 1.43 | 1.59 | 1.62 |
| | Other Fillets | 1.39 | 1.19 | 1.30 | 1.34 | 1.16 | 1.17 | 1.30 | 1.31 | 1.50 | 1.47 |
| | Surimi | 1.27 | 1.01 | 1.32 | 1.06 | 1.64 | 1.00 | 1.38 | 1.15 | 1.48 | 1.25 |
| | Minced Fish | 0.67 | 0.66 | 0.80 | 0.74 | 0.69 | 0.63 | 0.68 | 0.66 | 0.81 | 0.74 |
| | Fishmeal | 0.92 | 0.63 | 0.84 | 0.67 | 0.74 | 0.66 | 0.77 | 0.61 | 1.00 | 0.49 |
| | Other Products | 0.52 | 0.38 | 0.64 | 0.42 | 0.55 | 0.33 | 0.56 | 0.38 | 0.51 | 0.36 |
| | All Products | 1.22 | 0.97 | 1.26 | 1.01 | 1.33 | 0.96 | 1.27 | 1.07 | 1.38 | 1.12 |
| Pacific Cod | Whole Fish | 0.34 | 0.57 | 0.71 | 0.69 | 0.87 | * | 0.83 | 0.74 | 0.28 | 0.54 |
| | Head And Gut | 1.43 | 1.03 | 1.35 | 0.98 | 1.63 | 1.20 | 1.89 | 1.70 | 1.67 | 1.23 |
| | Roe | 0.60 | 0.77 | 0.51 | 0.64 | 0.62 | 0.71 | 1.08 | 1.31 | 0.81 | 0.90 |
| | Fillets | 1.18 | 2.72 | 1.37 | 3.40 | 1.79 | 3.73 | 2.98 | 4.14 | 3.18 | 3.93 |
| | Other Products | 0.96 | 0.82 | 1.03 | 0.75 | 0.87 | 0.90 | 0.79 | 1.11 | 0.69 | 0.91 |
| | All Products | 1.39 | 1.32 | 1.31 | 1.63 | 1.56 | 1.89 | 1.78 | 2.29 | 1.55 | 1.91 |
| Sablefish | Head And Gut | 8.60 | 7.43 | 6.24 | 7.93 | 5.12 | 7.22 | 3.42 | 5.70 | 3.07 | 3.70 |
| | Other Products | 1.93 | 2.30 | 0.83 | 3.17 | 0.87 | 6.31 | 0.61 | 8.58 | 0.90 | 1.67 |
| | All Products | 8.34 | 7.37 | 6.02 | 7.74 | 4.68 | 7.16 | 3.02 | 5.92 | 2.85 | 3.64 |
| Atka Mackerel | Whole Fish | 0.53 | * | 0.86 | 0.62 | 0.84 | * | 1.03 | 0.70 | 0.94 | * |
| | Head And Gut | 1.08 | - | 1.03 | - | 1.47 | - | 1.41 | * | 1.16 | * |
| | Other Products | 0.87 | 0.87 | 0.73 | 0.73 | 0.55 | 0.80 | 0.77 | 0.70 | 0.58 | 0.56 |
| | All Products | 1.02 | 0.87 | 1.02 | 0.65 | 1.37 | 0.80 | 1.35 | 0.70 | 1.16 | 0.56 |

Continued on next page.

Table 17: Continued

| | Product | 2015 | | 2016 | | 2017 | | 2018 | | 2019 | |
|--------------------|-----------------------|--------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|-----------|
| | | At-sea | Shoreside | At-sea | Shoreside | At-sea | Shoreside | At-sea | Shoreside | At-sea | Shoreside |
| Yellowfin | Whole Fish | 0.45 | - | 0.49 | - | 0.61 | - | 0.71 | 0.61 | 0.64 | - |
| | Head And Gut | 0.48 | - | 0.55 | - | 0.66 | - | 0.82 | - | 0.79 | - |
| | Fillets | - | - | - | - | * | - | - | - | - | - |
| | Other Products | 1.02 | 0.87 | 0.86 | 0.73 | 0.74 | 0.80 | 0.83 | 0.70 | 0.63 | 0.56 |
| | All Products | 0.48 | 0.87 | 0.55 | 0.73 | 0.65 | 0.80 | 0.81 | 0.62 | 0.78 | 0.56 |
| Rock Sole | Whole Fish | 0.50 | - | 0.59 | * | 0.59 | * | 0.75 | 0.46 | 0.90 | * |
| | Head And Gut | 0.49 | - | 0.56 | - | 0.65 | - | 0.83 | * | 0.79 | - |
| | Head And Gut With Roe | 0.89 | - | 1.00 | - | 1.24 | - | 1.50 | - | 1.32 | - |
| | Fillets | 2.78 | - | * | - | * | * | 2.73 | - | - | * |
| | Other Products | 0.87 | 0.87 | 0.78 | 0.73 | 0.63 | 0.80 | 0.72 | 0.70 | 0.58 | 0.56 |
| | All Products | 0.55 | 0.87 | 0.62 | 0.73 | 0.72 | 0.80 | 0.89 | 0.53 | 0.83 | 0.56 |
| | | | | | | | | | | | |
| Flathead Sole | Whole Fish | 0.44 | 0.55 | 0.57 | * | 0.61 | * | 0.82 | 0.52 | 0.80 | - |
| | Head And Gut | 0.63 | - | 0.76 | - | 0.87 | - | 0.98 | * | 0.86 | - |
| | Fillets | 2.33 | - | - | - | - | - | * | * | - | - |
| | Other Products | 0.87 | 0.87 | 0.66 | 0.73 | 0.59 | 0.80 | 0.70 | 0.70 | 0.57 | 0.56 |
| | All Products | 0.64 | 0.84 | 0.74 | 0.73 | 0.86 | 0.80 | 0.97 | 0.60 | 0.86 | 0.56 |
| Arrowtooth | Whole Fish | * | * | 0.56 | * | * | - | * | - | - | - |
| | Head And Gut | 0.74 | * | 0.86 | - | 1.30 | - | 0.87 | - | 0.88 | - |
| | Fillets | - | - | - | - | - | - | - | - | * | - |
| | Other Products | 0.87 | 0.87 | 0.64 | 0.73 | 0.65 | 0.80 | 0.70 | 0.70 | 0.58 | 0.56 |
| | All Products | 0.74 | 0.87 | 0.84 | 0.73 | 1.30 | 0.80 | 0.87 | 0.70 | 0.87 | 0.56 |
| Kamchatka Flounder | Whole Fish | - | - | * | - | - | - | - | - | - | - |
| | Head And Gut | 0.67 | - | 0.83 | - | 1.48 | - | 1.27 | - | 0.99 | - |
| | Fishmeal | 0.94 | - | 0.86 | - | 0.67 | - | 0.82 | - | 0.57 | * |
| | Other Products | - | - | - | - | - | - | * | - | - | - |
| | All Products | 0.67 | - | 0.83 | - | 1.48 | - | 1.27 | - | 0.99 | * |
| Turbot | Whole Fish | - | * | 1.97 | - | - | - | - | - | * | - |
| | Head And Gut | 2.01 | - | 2.52 | * | 2.41 | - | 2.44 | - | 2.51 | - |
| | Other Products | 1.69 | 0.87 | 1.76 | 0.73 | 1.45 | 0.80 | 1.04 | 0.70 | 1.03 | 0.56 |
| | All Products | 1.93 | 0.87 | 2.30 | 0.73 | 2.14 | 0.80 | 2.08 | 0.70 | 2.10 | 0.56 |

Continued on next page.

Table 17: Continued

| | | 2015 | | 2016 | | 2017 | | 2018 | | 2019 | |
|---------------------|----------------|--------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|-----------|
| | Product | At-sea | Shoreside | At-sea | Shoreside | At-sea | Shoreside | At-sea | Shoreside | At-sea | Shoreside |
| Other Flatfish | Whole Fish | 0.51 | * | 0.59 | * | 0.78 | 1.62 | 0.68 | * | 1.26 | 1.37 |
| | Head And Gut | 0.46 | - | 0.47 | * | 0.81 | * | 0.64 | * | 0.65 | * |
| | Fillets | - | - | - | - | - | * | - | * | - | - |
| | Other Products | 0.88 | 0.87 | 0.76 | 0.73 | 0.65 | 0.80 | 0.82 | 0.71 | 0.57 | 0.57 |
| | All Products | 0.47 | 0.87 | 0.51 | 0.73 | 0.81 | 1.49 | 0.64 | 0.71 | 0.68 | 1.19 |
| Pacific Ocean Perch | Whole Fish | - | 0.56 | 0.65 | 0.58 | 0.57 | 0.54 | 0.61 | 0.61 | 0.72 | 0.44 |
| | Head And Gut | 1.06 | * | 0.93 | * | 1.14 | * | 1.11 | * | 0.82 | * |
| | Other Products | 0.87 | 0.87 | 0.60 | 0.73 | 0.60 | 0.80 | 0.70 | 0.70 | 0.57 | 1.33 |
| | All Products | 1.06 | 0.61 | 0.92 | 0.58 | 1.11 | 0.56 | 1.04 | 0.64 | 0.80 | 0.74 |
| Northern Rockfish | Whole Fish | - | 0.46 | - | 0.68 | - | * | * | * | - | * |
| | Head And Gut | 0.75 | - | 0.64 | - | 0.77 | - | 0.79 | * | 0.69 | * |
| | Other Products | 0.87 | 0.87 | 0.59 | 0.73 | 0.61 | * | 0.63 | * | 0.57 | 0.69 |
| | All Products | 0.75 | 0.65 | 0.64 | 0.70 | 0.77 | * | 0.79 | * | 0.69 | 0.69 |
| Other Rockfish | Whole Fish | 1.72 | * | 2.27 | * | 2.29 | 0.69 | 1.72 | * | 1.71 | * |
| | Head And Gut | 1.08 | 3.28 | 1.06 | 2.95 | 1.14 | 2.42 | 1.14 | 1.74 | 1.26 | 2.00 |
| | Other Products | 0.99 | 1.33 | 0.78 | 1.39 | 0.75 | 0.76 | 0.87 | 0.82 | 0.57 | 0.77 |
| | All Products | 1.26 | 3.07 | 1.47 | 2.83 | 1.58 | 1.93 | 1.31 | 1.58 | 1.35 | 1.71 |
| Other Groundfish | Whole Fish | * | 0.53 | 1.02 | 0.96 | * | 0.80 | 0.12 | 1.08 | 1.54 | 0.64 |
| | Head And Gut | 0.64 | * | 1.83 | - | 0.78 | * | 0.81 | 2.70 | 1.19 | 1.10 |
| | Roe | - | - | - | - | - | - | * | - | - | - |
| | Fillets | - | - | * | - | - | - | * | - | - | - |
| | Fishmeal | 0.87 | 0.87 | 0.68 | 0.73 | 0.71 | 0.78 | 0.74 | 0.70 | 0.57 | 0.57 |
| | Other Products | 0.87 | 1.69 | 0.72 | 4.01 | 0.84 | * | 1.01 | 1.43 | 0.89 | * |
| | All Products | 0.87 | 0.97 | 0.72 | 1.03 | 0.84 | 0.79 | 1.00 | 1.23 | 0.88 | 0.62 |

Notes: These estimates are based on data from both federal and state of Alaska fisheries. Prices based on confidential data have been excluded. Values are not adjusted for inflation. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 18: Bering Sea & Aleutian Islands total product value per round metric ton of retained catch by processor type, species, and year, 2015-2019, (\$/mt).

| | Species | 2015 | 2016 | 2017 | 2018 | 2019 |
|----------------------|---------------|--------|--------|--------|-------|-------|
| Motherships | Pollock | 971 | 909 | * | 974 | 1,007 |
| | Pacific Cod | 464 | 709 | * | 397 | 331 |
| Catcher/processors | Pollock | 1,047 | 1,090 | 1,128 | 1,063 | 1,192 |
| | Sablefish | 10,660 | 7,707 | 5,760 | 4,529 | 3,659 |
| | Pacific Cod | 1,579 | 1,484 | 1,756 | 2,024 | 1,809 |
| | Flatfish | 691 | 789 | 969 | 1,077 | 1,068 |
| | Rockfish | 1,141 | 977 | 1,162 | 1,142 | 865 |
| | Atka Mackerel | 1,391 | 1,363 | 1,977 | 1,845 | 1,508 |
| | Other | 509 | 426 | 473 | 629 | 575 |
| Shoreside processors | Pollock | 887 | 929 | 860 | 959 | 1,032 |
| | Sablefish | 13,155 | 12,282 | 11,007 | 6,856 | 3,089 |
| | Pacific Cod | 1,389 | 1,564 | 1,714 | 2,268 | 1,706 |
| | Flatfish | 559 | 968 | 690 | 621 | 625 |
| | Rockfish | 1,063 | 1,142 | 958 | 867 | 732 |
| | Other | 1,205 | 1,501 | 934 | 1,246 | 4,647 |

Notes: These estimates include the product value of catch from both federal and state of Alaska fisheries. Values are not adjusted for inflation. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region At-sea and Shoreside Production Reports; ADF&G Commercial Operators Annual Reports (COAR); and NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 19: Bering Sea & Aleutian Islands number of processors, gross product value, value per processor, and percent value of BSAI FMP groundfish of processed groundfish by processor group, 2015-2019 (\$ millions).

| | Year | Processors | Wholesale Value (\$million) | Wholesale Value Per Processor (\$1,000) | Percent Value, BSAI FMP Groundfish |
|---------------------------------------|------|------------|-----------------------------|---|------------------------------------|
| AFA CP | 2015 | 16 | 663.08 | 41,442.80 | 36.33 |
| | 2016 | 15 | 684.55 | 45,636.64 | 35.41 |
| | 2017 | 16 | 747.99 | 46,749.63 | 36.34 |
| | 2018 | 14 | 678.20 | 48,442.66 | 31.91 |
| | 2019 | 15 | 808.70 | 53,913.09 | 37.89 |
| A80 | 2015 | 18 | 293.37 | 16,298.11 | 16.07 |
| | 2016 | 19 | 320.59 | 16,872.90 | 16.58 |
| | 2017 | 19 | 392.40 | 20,652.76 | 19.07 |
| | 2018 | 19 | 426.16 | 22,429.62 | 20.05 |
| | 2019 | 20 | 373.07 | 18,653.72 | 17.48 |
| CP Hook and Line | 2015 | 31 | 230.84 | 7,446.58 | 12.65 |
| | 2016 | 32 | 211.38 | 6,605.54 | 10.93 |
| | 2017 | 29 | 246.04 | 8,484.03 | 11.95 |
| | 2018 | 26 | 225.39 | 8,668.79 | 10.61 |
| | 2019 | 24 | 183.18 | 7,632.61 | 8.58 |
| Sablefish IFQ | 2015 | 5 | 1.44 | 287.33 | 0.08 |
| | 2016 | 7 | 1.40 | 200.11 | 0.07 |
| | 2017 | 6 | 1.68 | 280.05 | 0.08 |
| | 2018 | 8 | 1.84 | 230.39 | 0.09 |
| | 2019 | 5 | 0.70 | 139.83 | 0.03 |
| Motherships & Inshore Floating Procs. | 2015 | 3 | 111.49 | 37,162.39 | 6.11 |
| | 2016 | 4 | 106.69 | 26,673.69 | 5.52 |
| | 2017 | 2 | * | * | * |
| | 2018 | 3 | 116.49 | 38,828.46 | 5.48 |
| | 2019 | 4 | 123.52 | 30,879.46 | 5.79 |
| BSAI Shoreside Processors | 2015 | 6 | 513.67 | 85,611.14 | 28.15 |
| | 2016 | 7 | 576.25 | 82,321.86 | 29.81 |
| | 2017 | 7 | 555.74 | 79,391.83 | 27.00 |
| | 2018 | 7 | 629.17 | 89,881.78 | 29.60 |
| | 2019 | 7 | 638.29 | 91,184.38 | 29.91 |

Notes: The data are for catch from both federal and state of Alaska fisheries. The processor groups are defined as follows: “AFA CP” are the AFA catcher processors. “A80” are the catcher processors as defined under Amendment 80 of the BSAI FMP. “CP Hook and Line” are the hook and line catcher processors. “Sablefish IFQ” are processors processing sablefish IFQ. Values are not adjusted for inflation.

Source: ADF&G Commercial Operators Annual Reports (COAR); and ADF&G Intent to Operate (ITO) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 20: Bering Sea & Aleutian Islands number of vessels, average and median length, and average and median capacity (tonnage) of vessels that caught groundfish by vessel type, and gear, 2015-2019.

| | Year | Vessels | Average Length (feet) | Median Length (feet) | Average Capacity (tons) | Median Capacity (tons) |
|---------------------|------|---------|-----------------------------|----------------------------|-------------------------------|------------------------------|
| AFA CV | 2015 | 86 | 127 | 124 | 163 | 134 |
| | 2016 | 89 | 126 | 124 | 160 | 133 |
| | 2017 | 86 | 126 | 123 | 158 | 133 |
| | 2018 | 86 | 127 | 123 | 160 | 132 |
| | 2019 | 83 | 127 | 123 | 161 | 133 |
| AFA CP | 2015 | 17 | 289 | 285 | 1,623 | 1,592 |
| | 2016 | 16 | 302 | 296 | 1,717 | 1,592 |
| | 2017 | 16 | 290 | 285 | 1,571 | 1,592 |
| | 2018 | 15 | 302 | 285 | 1,850 | 1,778 |
| | 2019 | 14 | 307 | 300 | 1,927 | 1,778 |
| A80 | 2015 | 18 | 184 | 185 | 428 | 426 |
| | 2016 | 19 | 185 | 185 | 444 | 426 |
| | 2017 | 19 | 180 | 185 | 477 | 473 |
| | 2018 | 19 | 181 | 185 | 468 | 473 |
| | 2019 | 20 | 184 | 185 | 480 | 473 |
| BSAI Trawl | 2015 | 14 | 118 | 108 | 150 | 132 |
| | 2016 | 13 | 132 | 130 | 242 | 132 |
| | 2017 | 16 | 122 | 112 | 171 | 132 |
| | 2018 | 21 | 150 | 144 | 301 | 276 |
| | 2019 | 19 | 157 | 144 | 312 | 276 |
| CV Hook and Line | 2015 | 2 | 56 | 58 | 42 | 43 |
| | 2017 | 3 | 55 | 59 | 40 | 47 |
| | 2018 | 5 | 53 | 56 | 77 | 95 |
| | 2019 | 4 | 42 | 38 | 23 | 29 |
| CP Hook and Line | 2015 | 30 | 145 | 136 | 333 | 258 |
| | 2016 | 31 | 146 | 136 | 338 | 258 |
| | 2017 | 28 | 148 | 141 | 350 | 296 |
| | 2018 | 25 | 149 | 141 | 336 | 258 |
| | 2019 | 23 | 153 | 150 | 372 | 308 |
| Sablefish IFQ | 2015 | 20 | 77 | 58 | 89 | 98 |
| | 2016 | 23 | 88 | 98 | 106 | 111 |
| | 2017 | 22 | 85 | 58 | 110 | 96 |
| | 2018 | 27 | 93 | 98 | 128 | 127 |
| | 2019 | 20 | 83 | 58 | 121 | 95 |

Continued on next page.

Table 20: Continued

| | Year | Vessels | Average Length (feet) | Median Length (feet) | Average Capacity (tons) | Median Capacity (tons) |
|--------------------|------|---------|-----------------------------|----------------------------|-------------------------------|------------------------------|
| Pot | 2015 | 48 | 86 | 58 | 122 | 105 |
| | 2016 | 56 | 80 | 58 | 114 | 105 |
| | 2017 | 64 | 83 | 58 | 119 | 105 |
| | 2018 | 78 | 80 | 58 | 107 | 105 |
| | 2019 | 83 | 77 | 58 | 103 | 105 |
| Jig | 2015 | 4 | 32 | 33 | 15 | 14 |
| | 2016 | 2 | 42 | 42 | 25 | 26 |
| | 2017 | 1 | 42 | 42 | 26 | 26 |
| | 2018 | 1 | 42 | 42 | 26 | 26 |
| | 2019 | 3 | 46 | 42 | 29 | 26 |
| No Fleet/ Other | 2015 | 1 | 48 | 48 | 28 | 28 |
| | 2017 | 2 | 31 | 30 | 14 | 13 |
| | 2018 | 1 | 34 | 34 | 17 | 17 |
| | 2019 | 2 | 49 | 51 | 21 | 21 |

Notes: These estimates include only vessels fishing part of federal TACs. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; CFEC gross earnings (fish tickets) file; NMFS Alaska Region groundfish observer data; NMFS Alaska Region permit data; CFEC vessel registration file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 21: Bering Sea & Aleutian Islands number of vessels that caught groundfish by month, vessel type, and gear, 2015-2019.

| | Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Year | |
|--------------------|-------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|
| Catcher Vessels | Hook & Line | 2015 | 3 | 2 | 4 | 3 | 7 | 6 | 6 | 8 | 8 | 9 | 3 | 1 | 22 |
| | | 2016 | 1 | - | 1 | 1 | 3 | 5 | 7 | 6 | 7 | 4 | - | - | 16 |
| | | 2017 | - | 1 | 2 | 2 | 4 | 2 | 7 | 4 | 9 | 3 | - | - | 18 |
| | | 2018 | - | - | 4 | 5 | 2 | 3 | 4 | 5 | 7 | 4 | 4 | 1 | 18 |
| | | 2019 | 2 | 4 | 6 | 6 | 4 | 3 | 3 | 4 | 5 | 4 | 4 | 1 | 16 |
| | Pot | 2015 | 29 | 27 | 21 | 15 | 1 | 2 | 2 | 1 | 13 | 21 | 9 | 16 | 47 |
| | | 2016 | 28 | 29 | 33 | 31 | 3 | 1 | 1 | 1 | 10 | 21 | 17 | 18 | 54 |
| | | 2017 | 48 | 21 | 25 | 25 | 7 | 4 | 1 | - | 11 | 13 | 15 | 33 | 63 |
| | | 2018 | 58 | 37 | 37 | 6 | 5 | 3 | - | - | 19 | 25 | 17 | 11 | 76 |
| | | 2019 | 72 | 41 | 42 | 5 | 3 | 2 | 1 | 1 | 28 | 12 | 12 | 10 | 80 |
| | Trawl | 2015 | 70 | 86 | 88 | 62 | 5 | 73 | 70 | 74 | 65 | 27 | 4 | - | 100 |
| | | 2016 | 71 | 91 | 91 | 69 | 8 | 61 | 70 | 69 | 53 | 16 | 1 | - | 101 |
| | | 2017 | 71 | 92 | 79 | 70 | 6 | 68 | 69 | 65 | 46 | 14 | 2 | - | 102 |
| | | 2018 | 77 | 96 | 91 | 62 | 8 | 61 | 67 | 70 | 60 | 3 | 3 | - | 105 |
| | | 2019 | 80 | 92 | 90 | 66 | 6 | 56 | 66 | 74 | 58 | 26 | 6 | - | 100 |
| | All Gear | 2015 | 102 | 115 | 113 | 79 | 13 | 81 | 78 | 83 | 86 | 57 | 16 | 17 | 166 |
| | | 2016 | 100 | 120 | 125 | 101 | 14 | 67 | 78 | 76 | 70 | 41 | 18 | 18 | 170 |
| | | 2017 | 119 | 114 | 106 | 97 | 17 | 74 | 77 | 69 | 66 | 30 | 17 | 33 | 182 |
| | | 2018 | 135 | 132 | 129 | 73 | 15 | 67 | 71 | 75 | 86 | 32 | 23 | 12 | 195 |
| | | 2019 | 154 | 137 | 138 | 77 | 13 | 61 | 70 | 79 | 91 | 42 | 22 | 11 | 194 |
| Catcher Processors | Hook & Line | 2015 | 26 | 27 | 28 | 24 | 22 | 18 | 22 | 25 | 28 | 27 | 27 | 28 | 31 |
| | | 2016 | 28 | 29 | 28 | 21 | 11 | 19 | 25 | 25 | 25 | 25 | 26 | 23 | 32 |
| | | 2017 | 27 | 27 | 26 | 21 | 11 | 20 | 25 | 26 | 25 | 24 | 24 | 24 | 29 |
| | | 2018 | 22 | 24 | 21 | 14 | 6 | 16 | 18 | 20 | 20 | 21 | 21 | 18 | 27 |
| | | 2019 | 17 | 18 | 20 | 14 | 6 | 10 | 17 | 21 | 21 | 19 | 16 | 14 | 25 |
| | Pot | 2015 | 4 | 4 | 2 | 2 | 1 | - | - | 1 | 4 | 4 | 4 | 1 | 4 |
| | | 2016 | 5 | 3 | 3 | 2 | - | - | - | 1 | 3 | 3 | 1 | 3 | 5 |
| | | 2017 | 5 | 2 | 2 | 2 | - | - | - | 1 | 5 | 5 | 2 | 3 | 6 |
| | | 2018 | 5 | 2 | 2 | 2 | 1 | 1 | - | 1 | 5 | 2 | - | 1 | 6 |
| | | 2019 | 5 | 2 | 2 | - | - | - | - | - | 5 | 1 | 3 | 2 | 6 |
| | Trawl | 2015 | 34 | 34 | 33 | 21 | 19 | 30 | 27 | 28 | 28 | 20 | 14 | 3 | 34 |
| | | 2016 | 32 | 32 | 33 | 25 | 20 | 29 | 30 | 30 | 32 | 24 | 12 | 4 | 35 |
| | | 2017 | 26 | 33 | 33 | 27 | 19 | 29 | 32 | 32 | 29 | 19 | 14 | 2 | 35 |
| | | 2018 | 29 | 33 | 35 | 25 | 21 | 29 | 30 | 33 | 33 | 22 | 14 | 4 | 35 |
| | | 2019 | 27 | 34 | 35 | 25 | 22 | 30 | 29 | 32 | 30 | 29 | 15 | 3 | 35 |
| | All Gear | 2015 | 64 | 65 | 63 | 47 | 42 | 48 | 49 | 54 | 60 | 51 | 45 | 32 | 69 |
| | | 2016 | 65 | 64 | 64 | 48 | 31 | 48 | 55 | 56 | 60 | 52 | 39 | 30 | 71 |
| | | 2017 | 58 | 62 | 61 | 50 | 30 | 49 | 57 | 58 | 59 | 48 | 40 | 29 | 68 |
| | | 2018 | 56 | 59 | 58 | 41 | 28 | 46 | 48 | 54 | 58 | 45 | 35 | 23 | 66 |
| | | 2019 | 49 | 54 | 57 | 39 | 28 | 40 | 46 | 53 | 56 | 49 | 34 | 19 | 65 |

Notes: These estimates include only vessels fishing part of federal TACs. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; CFEC gross earnings (fish tickets) file; NMFS Alaska Region groundfish observer data; NMFS Alaska Region permit data; CFEC vessel registration file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 22: Bering Sea & Aleutian Islands catcher vessel (excluding catcher/processors) weeks of fishing groundfish by vessel-length class (feet), gear, and target, 2015-2019.

| | Year | Hook & Line | | Pot | | | Trawl | | | All Gear | | |
|----------------|------|-------------|----------|-------|----------|---------|-------|----------|---------|----------|----------|---------|
| | | <60ft | 60-124ft | <60ft | 60-124ft | >=125ft | <60ft | 60-124ft | >=125ft | <60ft | 60-124ft | >=125ft |
| Pollock | 2015 | - | - | - | - | - | - | 904 | 612 | - | 904 | 612 |
| | 2016 | - | - | - | - | - | - | 863 | 569 | - | 863 | 569 |
| | 2017 | - | - | - | - | - | - | 864 | 498 | - | 864 | 498 |
| | 2018 | - | - | - | - | - | - | 900 | 521 | - | 900 | 521 |
| | 2019 | - | - | - | - | - | 0 | 945 | 534 | 0 | 945 | 534 |
| Sablefish | 2015 | 69 | 14 | 6 | 18 | 4 | - | - | - | 75 | 32 | 4 |
| | 2016 | 30 | 13 | - | 22 | 8 | - | - | - | 30 | 35 | 8 |
| | 2017 | 30 | 6 | - | 25 | 12 | - | - | - | 30 | 31 | 12 |
| | 2018 | 13 | 14 | 15 | 20 | 6 | - | - | - | 28 | 34 | 6 |
| | 2019 | 5 | 14 | 18 | 13 | 7 | - | - | - | 23 | 27 | 7 |
| Pacific Cod | 2015 | 48 | 1 | 313 | 116 | 15 | - | 263 | 32 | 361 | 380 | 47 |
| | 2016 | 13 | - | 428 | 149 | 15 | - | 279 | 38 | 441 | 428 | 53 |
| | 2017 | 21 | - | 395 | 173 | 39 | - | 211 | 31 | 416 | 384 | 70 |
| | 2018 | 46 | 1 | 373 | 152 | 29 | 37 | 199 | 44 | 456 | 352 | 73 |
| | 2019 | 82 | - | 458 | 153 | 24 | 6 | 143 | 40 | 546 | 296 | 64 |
| Flatfish | 2015 | - | - | - | - | - | - | 27 | 30 | - | 27 | 30 |
| | 2016 | - | - | - | - | - | - | 42 | 33 | - | 42 | 33 |
| | 2017 | - | - | - | - | - | - | 48 | 53 | - | 48 | 53 |
| | 2018 | - | - | - | - | - | - | 32 | 46 | - | 32 | 46 |
| | 2019 | 1 | - | - | - | - | - | 59 | 72 | 1 | 59 | 72 |
| Rockfish | 2015 | 1 | - | - | - | - | - | 4 | 9 | 1 | 4 | 9 |
| | 2016 | - | - | - | - | - | - | 2 | 4 | - | 2 | 4 |
| | 2017 | - | - | - | - | - | - | 3 | 4 | - | 3 | 4 |
| | 2018 | - | - | - | - | - | - | 3 | 3 | - | 3 | 3 |
| | 2019 | - | - | - | - | - | - | 4 | 11 | - | 4 | 11 |
| Atka Mackerel | 2015 | - | - | - | - | - | - | 5 | 10 | - | 5 | 10 |
| | 2016 | - | - | - | - | - | - | 6 | 13 | - | 6 | 13 |
| | 2017 | - | - | - | - | - | - | 5 | 15 | - | 5 | 15 |
| | 2018 | - | - | - | - | - | - | 9 | 21 | - | 9 | 21 |
| | 2019 | - | - | - | - | - | - | 4 | 8 | - | 4 | 8 |
| All Groundfish | 2015 | 117 | 15 | - | - | - | - | 1,203 | 692 | 436 | 1,352 | 711 |
| | 2016 | 43 | 13 | - | - | - | - | 1,192 | 657 | 471 | 1,375 | 680 |
| | 2017 | 51 | 6 | - | - | - | - | 1,131 | 600 | 446 | 1,334 | 651 |
| | 2018 | 59 | 15 | - | - | - | 37 | 1,143 | 635 | 484 | 1,330 | 670 |
| | 2019 | 88 | 14 | - | - | - | 6 | 1,154 | 664 | 570 | 1,334 | 695 |

Notes: These estimates include only vessels fishing part of federal TACs. A vessel that fished more than one category in a week is apportioned a partial week based on catch weight. A target is determined based on vessel, week, processing mode, NMFS area, and gear. All groundfish include additional target categories. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; CFEC gross earnings (fish tickets) file; NMFS Alaska Region groundfish observer data; NMFS Alaska Region permit data; CFEC vessel registration file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 23: Bering Sea & Aleutian Islands catcher/processor vessel weeks of fishing groundfish by vessel-length class (feet), gear, and target, 2015-2019.

| | Year | Hook & Line | | | Pot | | | Trawl | | | All Gear | | | |
|----------------|------|-------------|----------|-----------|-------|----------|-----------|----------|-----------|--------|----------|----------|-----------|--------|
| | | <60ft | 60-124ft | 125-230ft | <60ft | 60-124ft | 125-230ft | 60-124ft | 125-230ft | >230ft | <60ft | 60-124ft | 125-230ft | >230ft |
| Pollock | 2015 | - | - | - | - | - | - | 1 | 6 | 310 | - | 1 | 6 | 310 |
| | 2016 | - | - | - | - | - | - | 1 | 4 | 303 | - | 1 | 4 | 303 |
| | 2017 | - | - | - | - | - | - | 0 | 5 | 301 | - | 0 | 5 | 301 |
| | 2018 | - | - | - | - | - | - | 0 | 6 | 317 | - | 0 | 6 | 317 |
| | 2019 | - | - | - | - | - | - | 2 | 7 | 312 | - | 2 | 7 | 312 |
| Sablefish | 2015 | - | 38 | 0 | - | - | - | - | - | - | - | 38 | 0 | - |
| | 2016 | 11 | 26 | 0 | - | - | - | - | 0 | - | 11 | 26 | 0 | - |
| | 2017 | 19 | - | 1 | - | 9 | - | 0 | 0 | - | 19 | 9 | 1 | - |
| | 2018 | 0 | 6 | 2 | - | 17 | - | - | 3 | - | 0 | 23 | 5 | - |
| | 2019 | 7 | - | 2 | - | - | 7 | - | 0 | - | 7 | - | 9 | - |
| Pacific Cod | 2015 | 9 | 253 | 812 | - | 23 | 62 | 1 | 11 | 9 | 9 | 277 | 885 | 9 |
| | 2016 | 9 | 223 | 766 | 18 | 13 | 54 | 1 | 17 | 11 | 27 | 237 | 837 | 11 |
| | 2017 | 8 | 180 | 790 | 13 | 20 | 44 | 1 | 11 | 7 | 21 | 201 | 845 | 7 |
| | 2018 | 9 | 88 | 678 | - | 28 | 23 | 2 | 17 | 7 | 9 | 118 | 718 | 7 |
| | 2019 | 7 | 21 | 635 | 15 | 21 | 21 | 1 | 11 | 8 | 22 | 43 | 667 | 8 |
| Flatfish | 2015 | - | 2 | 26 | - | - | - | 105 | 395 | 51 | - | 107 | 421 | 51 |
| | 2016 | - | - | 25 | - | - | - | 100 | 427 | 60 | - | 100 | 452 | 60 |
| | 2017 | - | - | 26 | - | - | - | 88 | 406 | 52 | - | 88 | 432 | 52 |
| | 2018 | - | - | 13 | - | - | - | 94 | 421 | 56 | - | 94 | 434 | 56 |
| | 2019 | - | - | 16 | - | - | - | 95 | 435 | 76 | - | 95 | 451 | 76 |
| Rockfish | 2015 | - | 0 | - | - | - | - | 3 | 36 | 17 | - | 3 | 36 | 17 |
| | 2016 | - | 2 | 1 | - | - | - | 0 | 39 | 8 | - | 2 | 40 | 8 |
| | 2017 | - | - | - | - | - | - | 3 | 45 | 4 | - | 3 | 45 | 4 |
| | 2018 | - | - | 1 | - | - | - | 3 | 43 | 6 | - | 3 | 44 | 6 |
| | 2019 | - | - | 0 | - | - | - | 5 | 60 | 8 | - | 5 | 60 | 8 |
| Atka Mackerel | 2015 | - | - | - | - | - | - | - | 66 | 27 | - | - | 66 | 27 |
| | 2016 | - | - | - | - | - | - | - | 80 | 23 | - | - | 80 | 23 |
| | 2017 | - | - | - | - | - | - | 7 | 105 | 11 | - | 7 | 105 | 11 |
| | 2018 | - | - | - | - | - | - | 7 | 122 | 12 | - | 7 | 122 | 12 |
| | 2019 | - | - | - | - | - | - | 4 | 88 | 12 | - | 4 | 88 | 12 |
| All Groundfish | 2015 | 9 | 293 | 838 | - | 23 | 62 | 110 | 513 | 415 | 9 | 426 | 1,413 | 415 |
| | 2016 | 20 | 251 | 792 | 18 | 13 | 54 | 101 | 567 | 405 | 38 | 365 | 1,413 | 405 |
| | 2017 | 27 | 180 | 818 | 13 | 29 | 44 | 99 | 574 | 375 | 40 | 308 | 1,436 | 375 |
| | 2018 | 9 | 94 | 695 | - | 45 | 23 | 106 | 611 | 397 | 9 | 245 | 1,329 | 397 |
| | 2019 | 14 | 21 | 654 | 15 | 21 | 28 | 108 | 601 | 416 | 29 | 150 | 1,283 | 416 |

Notes: These estimates include only vessels fishing part of federal TACs. A vessel that fished more than one category in a week is apportioned a partial week based on catch weight. A target is determined based on vessel, week, processing mode, NMFS area, and gear. All groundfish include additional target categories. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; CFEC gross earnings (fish tickets) file; NMFS Alaska Region groundfish observer data; NMFS Alaska Region permit data; CFEC vessel registration file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 24: Bering Sea & Aleutian Islands catcher vessel crew weeks in the groundfish fisheries by month, 2015-2019.

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Year |
|------|-------|-------|-------|-------|-----|-----|-------|-------|-------|-----|-----|-----|--------|
| 2015 | 972 | 1,656 | 1,724 | 567 | 132 | 854 | 1,240 | 1,722 | 1,114 | 644 | 142 | 136 | 10,904 |
| 2016 | 948 | 1,901 | 1,796 | 1,271 | 138 | 692 | 1,529 | 1,254 | 850 | 521 | 187 | 157 | 11,245 |
| 2017 | 1,102 | 1,768 | 1,660 | 989 | 238 | 739 | 1,430 | 1,116 | 872 | 340 | 236 | 242 | 10,732 |
| 2018 | 1,229 | 2,049 | 2,043 | 708 | 201 | 822 | 1,168 | 1,314 | 1,254 | 427 | 169 | 120 | 11,504 |
| 2019 | 1,082 | 2,014 | 2,116 | 649 | 225 | 729 | 1,050 | 1,475 | 1,254 | 466 | 346 | 94 | 11,499 |

Notes: Crew weeks are calculated by summing weekly reported crew size over vessels and time period. These estimates include only vessels targeting groundfish counted toward federal TACs. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region At-sea Production Reports. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 25: Bering Sea & Aleutian Islands at-sea processor vessel crew weeks in the groundfish fisheries by month, 2015-2019.

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Year |
|------|-------|--------|--------|-------|-------|-------|--------|--------|--------|-------|-------|-------|---------|
| 2015 | 7,843 | 13,467 | 12,836 | 5,523 | 5,003 | 7,875 | 10,941 | 14,849 | 9,241 | 6,836 | 3,457 | 2,228 | 100,099 |
| 2016 | 7,231 | 13,368 | 12,457 | 6,660 | 3,785 | 6,325 | 13,134 | 11,704 | 9,298 | 7,214 | 3,108 | 2,108 | 96,392 |
| 2017 | 6,262 | 12,765 | 12,817 | 7,719 | 3,454 | 6,229 | 14,410 | 11,861 | 9,408 | 4,966 | 3,641 | 2,055 | 95,587 |
| 2018 | 5,792 | 13,559 | 15,843 | 5,232 | 3,750 | 8,022 | 11,726 | 12,878 | 12,374 | 4,982 | 3,201 | 1,897 | 99,256 |
| 2019 | 3,705 | 13,534 | 16,009 | 4,825 | 3,979 | 6,887 | 11,256 | 15,040 | 11,163 | 7,559 | 4,094 | 1,198 | 99,249 |

Notes: Crew weeks are calculated by summing weekly reported crew size over vessels and time period. These estimates include only vessels targeting groundfish counted toward federal TACs. Catcher processors typically account for 90-95% of the total at-sea crew weeks in all areas. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region At-sea Production Reports. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 26: Gulf of Alaska groundfish retained catch by vessel type, gear, and species, 2015-2019 (1,000 metric tons, round weight).

| | Year | Central Gulf | | | | Western Gulf | | | | All Gulf | | | |
|------------------|------|---------------------|------|-------|-------------|---------------------|------|-------|-------------|---------------------|------|-------|-------------|
| | | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear |
| Pollock | 2015 | - | - | 132.7 | 132.9 | - | - | 25.8 | 25.8 | - | - | 163.2 | 163.4 |
| | 2016 | - | - | 110.9 | 111.1 | - | - | 61.0 | 61.0 | - | - | 175.8 | 176.0 |
| | 2017 | - | - | 133.1 | 133.2 | - | - | 49.2 | 49.2 | - | - | 184.2 | 184.3 |
| | 2018 | - | - | 118.3 | 118.3 | - | - | 30.5 | 30.5 | - | - | 155.7 | 155.8 |
| | 2019 | - | - | 87.8 | 87.8 | - | - | 21.7 | 21.7 | - | - | 118.7 | 118.7 |
| Pacific Cod | 2015 | 9.5 | 23.1 | 14.2 | 46.7 | 5.1 | 17.1 | 7.2 | 29.3 | 16.1 | 40.1 | 21.3 | 77.6 |
| | 2016 | 5.1 | 20.6 | 7.7 | 33.5 | 4.2 | 17.0 | 7.4 | 28.6 | 10.5 | 37.6 | 15.1 | 63.2 |
| | 2017 | 3.8 | 11.3 | 5.3 | 20.5 | 4.4 | 15.0 | 7.6 | 27.0 | 8.7 | 26.4 | 12.9 | 48.0 |
| | 2018 | 1.5 | 3.1 | 2.1 | 6.7 | 1.4 | 4.5 | 1.4 | 7.3 | 3.3 | 7.6 | 3.5 | 14.4 |
| | 2019 | 1.5 | 3.2 | 2.1 | 6.8 | 1.3 | 4.3 | 1.6 | 7.2 | 3.3 | 7.5 | 3.7 | 14.4 |
| Sablefish | 2015 | 3.6 | - | 0.6 | 4.3 | 0.9 | - | 0 | 1.0 | 9.3 | - | 0.8 | 10.2 |
| | 2016 | 3.2 | - | 0.7 | 3.8 | 0.9 | - | 0 | 0.9 | 8.2 | - | 0.9 | 9.0 |
| | 2017 | 3.0 | 0.4 | 0.7 | 4.2 | 0.8 | 0.2 | 0.1 | 1.1 | 8.2 | 0.9 | 1.0 | 10.1 |
| | 2018 | 2.9 | 0.5 | 0.6 | 4.0 | 0.7 | 0.4 | 0.1 | 1.2 | 8.4 | 1.1 | 0.9 | 10.5 |
| | 2019 | 2.5 | 1.1 | 0.7 | 4.3 | 0.7 | 0.4 | 0.3 | 1.3 | 7.8 | 1.9 | 1.1 | 10.9 |
| Atka Mackerel | 2015 | - | - | 0.5 | 0.5 | - | - | 0.3 | 0.3 | - | - | 0.9 | 0.9 |
| | 2016 | - | - | 0.8 | 0.8 | - | - | 0.1 | 0.1 | - | - | 1.0 | 1.0 |
| | 2017 | - | - | 0.2 | 0.2 | - | - | 0.4 | 0.4 | - | - | 0.7 | 0.7 |
| | 2018 | - | - | 0.7 | 0.7 | - | - | 0.6 | 0.6 | - | - | 1.3 | 1.3 |
| | 2019 | - | - | 0.5 | 0.5 | - | - | 0.6 | 0.6 | - | - | 1.1 | 1.1 |
| Arrowtooth | 2015 | 0 | - | 16.7 | 16.7 | * | - | 0.3 | 0.3 | 0 | - | 16.9 | 16.9 |
| | 2016 | 0 | - | 17.5 | 17.5 | 0 | - | 0.2 | 0.2 | 0 | - | 17.7 | 17.7 |
| | 2017 | 0 | - | 24.8 | 24.8 | 0 | - | 0.1 | 0.1 | 0 | - | 24.9 | 24.9 |
| | 2018 | 0 | - | 16.2 | 16.2 | 0 | - | 0 | 0.1 | 0 | - | 16.3 | 16.3 |
| | 2019 | * | - | 22.4 | 22.4 | * | - | 0.2 | 0.2 | 0 | - | 22.6 | 22.6 |
| Flathead Sole | 2015 | - | - | 1.6 | 1.6 | - | - | 0.1 | 0.1 | - | - | 1.7 | 1.7 |
| | 2016 | - | - | 2.2 | 2.2 | - | - | 0.1 | 0.1 | - | - | 2.2 | 2.2 |
| | 2017 | - | - | 1.9 | 1.9 | - | - | 0 | 0 | - | - | 1.9 | 1.9 |
| | 2018 | - | - | 2.0 | 2.0 | - | - | 0 | 0 | - | - | 2.0 | 2.0 |
| | 2019 | - | - | 2.1 | 2.1 | * | - | 0 | 0 | * | - | 2.2 | 2.2 |

Continued on next page.

Table 26: Continued

| | Year | Central Gulf | | | | Western Gulf | | | | All Gulf | | | |
|-------------------------------|------|---------------------|-----|-------|-------------|---------------------|-----|-------|-------------|---------------------|-----|-------|-------------|
| | | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear |
| Rex Sole | 2015 | - | - | 1.9 | 1.9 | - | - | 0 | 0 | - | - | 1.9 | 1.9 |
| | 2016 | - | - | 1.5 | 1.5 | - | - | 0 | 0 | - | - | 1.5 | 1.5 |
| | 2017 | - | - | 1.2 | 1.2 | - | - | 0 | 0 | - | - | 1.2 | 1.2 |
| | 2018 | - | - | 1.1 | 1.1 | - | - | 0 | 0 | - | - | 1.2 | 1.2 |
| | 2019 | - | - | 1.1 | 1.1 | - | - | 0 | 0 | - | - | 1.1 | 1.1 |
| Shallow- water Flatfish | 2015 | * | - | 2.9 | 2.9 | - | - | 0 | 0 | * | - | 2.9 | 2.9 |
| | 2016 | * | - | 3.6 | 3.6 | - | - | 0 | 0 | * | - | 3.6 | 3.6 |
| | 2017 | - | - | 2.0 | 2.0 | * | - | 0 | 0 | * | - | 2.0 | 2.0 |
| | 2018 | - | - | 2.5 | 2.5 | * | - | 0 | 0 | * | - | 2.5 | 2.5 |
| | 2019 | - | - | 2.5 | 2.5 | - | - | 0 | 0 | - | - | 2.5 | 2.5 |
| Deep- water Flatfish | 2015 | * | - | 0.1 | 0.1 | - | - | * | * | * | - | 0.1 | 0.1 |
| | 2016 | * | - | 0.1 | 0.1 | * | - | * | * | * | - | 0.1 | 0.1 |
| | 2017 | * | - | 0.1 | 0.1 | 0 | - | 0 | 0 | 0 | - | 0.1 | 0.1 |
| | 2018 | * | - | 0.1 | 0.1 | * | - | * | * | * | - | 0.1 | 0.1 |
| | 2019 | - | - | 0 | 0 | * | - | * | * | * | - | 0 | 0 |
| Pacific Ocean Perch | 2015 | * | - | 14.1 | 14.1 | - | - | 1.9 | 1.9 | * | - | 16.0 | 16.0 |
| | 2016 | - | - | 16.1 | 16.1 | * | - | 2.5 | 2.5 | * | - | 18.6 | 18.6 |
| | 2017 | 0 | - | 14.9 | 14.9 | * | - | 2.6 | 2.6 | 0 | - | 17.5 | 17.5 |
| | 2018 | 0 | - | 17.1 | 17.1 | - | - | 3.1 | 3.1 | 0 | - | 20.3 | 20.3 |
| | 2019 | * | - | 17.3 | 17.3 | * | - | 3.1 | 3.1 | * | - | 20.5 | 20.5 |
| Northern Rockfish | 2015 | * | - | 2.8 | 2.8 | * | - | 0.9 | 0.9 | * | - | 3.8 | 3.8 |
| | 2016 | * | - | 3.2 | 3.2 | 0 | - | 0.1 | 0.1 | 0 | - | 3.2 | 3.2 |
| | 2017 | 0 | - | 1.5 | 1.5 | 0 | - | 0.2 | 0.2 | 0 | - | 1.7 | 1.7 |
| | 2018 | * | - | 2.0 | 2.0 | * | - | 0.3 | 0.3 | * | - | 2.3 | 2.3 |
| | 2019 | - | - | 1.8 | 1.8 | * | - | 0.8 | 0.8 | * | - | 2.6 | 2.6 |

Continued on next page.

Table 26: Continued

| | | Central Gulf | | | | Western Gulf | | | | All Gulf | | | |
|---------------------|------|---------------------|-----|-------|-------------|---------------------|-----|-------|-------------|---------------------|-----|-------|-------------|
| | Year | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear |
| Dusky Rockfish | 2015 | 0 | - | 2.4 | 2.5 | * | - | 0.2 | 0.2 | 0 | - | 2.6 | 2.6 |
| | 2016 | 0 | - | 3.1 | 3.1 | 0 | - | 0.1 | 0.1 | 0.1 | - | 3.1 | 3.2 |
| | 2017 | 0 | - | 2.3 | 2.3 | 0 | - | 0.1 | 0.1 | 0 | - | 2.4 | 2.4 |
| | 2018 | 0 | - | 2.8 | 2.8 | 0 | - | 0 | 0 | 0 | - | 2.8 | 2.8 |
| | 2019 | 0 | - | 2.0 | 2.0 | 0 | - | 0.2 | 0.2 | 0 | - | 2.2 | 2.2 |
| Other Rockfish | 2015 | 0.4 | - | 1.1 | 1.5 | 0.1 | - | 0.1 | 0.2 | 1.1 | - | 1.3 | 2.4 |
| | 2016 | 0.3 | - | 1.6 | 1.9 | 0.1 | - | 0.2 | 0.3 | 1.0 | - | 2.0 | 2.9 |
| | 2017 | 0.3 | - | 1.2 | 1.6 | 0.1 | - | 0.1 | 0.2 | 1.0 | - | 1.6 | 2.5 |
| | 2018 | 0.3 | - | 1.4 | 1.7 | 0.1 | - | 0.2 | 0.2 | 1.0 | - | 1.7 | 2.7 |
| | 2019 | 0.2 | - | 1.0 | 1.2 | 0.1 | - | 0.2 | 0.2 | 0.9 | - | 1.4 | 2.3 |
| Other Groundfish | 2015 | 0.6 | - | 0.9 | 1.8 | 0.1 | - | 0 | 0.1 | 0.8 | - | 1.1 | 2.2 |
| | 2016 | 0.2 | - | 1.1 | 1.4 | 0.1 | - | 0 | 0.2 | 0.4 | - | 1.1 | 1.7 |
| | 2017 | 0.1 | - | 0.8 | 1.0 | 0.2 | - | 0 | 0.2 | 0.3 | - | 0.8 | 1.3 |
| | 2018 | 0 | - | 0.8 | 0.9 | 0 | - | 0 | 0.1 | 0.1 | - | 0.8 | 1.0 |
| | 2019 | 0.1 | - | 0.9 | 1.1 | 0 | - | 0 | 0.1 | 0.1 | - | 0.9 | 1.3 |

Notes: The estimates are of retained catch (i.e., excludes discarded catch). All groundfish include additional species categories. These estimates include only catch counted against federal TACs. Includes FMP groundfish catch on halibut targets. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 27: Gulf of Alaska groundfish retained catch by species, gear, and target fishery, 2018-2019, (1,000 metric tons, round weight).

| | Target | Pollock | Sablefish | Pacific Cod | Arrowtooth | Flathead Sole | Rex Sole | Flat Deep | Flat Shallow | Rockfish | Atka Mackerel | Other | All Species |
|---------------|------------------|-------------|-----------|-------------|------------|---------------|----------|-----------|--------------|----------|---------------|-------|-------------|
| Central Gulf | Sablefish | * | 2.6 | 0 | * | - | - | * | - | 0.2 | - | * | 2.8 |
| | 2018 Pacific Cod | 0 | 0 | 1.2 | * | - | - | - | - | 0 | - | 0 | 1.3 |
| | Rockfish | - | - | * | - | - | - | - | - | 0 | - | - | 0 |
| | All Targets | 0 | 2.9 | 1.3 | 0 | - | - | * | - | 0.3 | - | 0 | 4.5 |
| Hook and Line | Sablefish | - | 2.3 | 0 | * | - | - | - | - | 0.2 | - | 0 | 2.4 |
| | 2019 Pacific Cod | 0 | * | 1.3 | * | - | - | - | - | 0 | - | 0 | 1.3 |
| | Rockfish | - | - | 0 | - | - | - | - | - | 0 | - | * | 0 |
| | All Targets | 0 | 2.5 | 1.3 | * | - | - | - | - | 0.2 | - | 0 | 4.1 |
| Western Gulf | Sablefish | - | 0.7 | * | * | - | - | * | - | 0.1 | - | - | 0.8 |
| | 2018 Pacific Cod | * | * | 0.3 | * | - | - | * | * | * | - | * | 0.3 |
| | All Targets | * | 0.7 | 0.3 | * | - | - | * | * | 0.1 | - | 0 | 1.1 |
| | Sablefish | * | 0.7 | 0 | * | - | - | - | - | 0.1 | - | - | 0.7 |
| All Gulf | 2019 Pacific Cod | * | * | 1.3 | * | * | - | * | - | * | - | * | 1.3 |
| | All Targets | * | 0.7 | 1.3 | * | * | - | * | - | 0.1 | - | 0 | 2.0 |
| | Sablefish | * | 7.8 | 0 | * | - | - | * | - | 0.7 | - | 0 | 8.5 |
| | 2018 Pacific Cod | 0 | 0 | 1.8 | * | - | - | * | * | 0 | - | 0 | 1.9 |
| All Gulf | Rockfish | * | * | 0 | - | - | - | - | - | 0.1 | - | - | 0.1 |
| | All Targets | 0 | 8.4 | 2.0 | 0 | - | - | * | * | 1.0 | - | 0.1 | 11.5 |
| | Sablefish | * | 7.2 | 0 | * | - | - | - | - | 0.6 | - | 0 | 7.8 |
| | 2019 Pacific Cod | 0 | * | 2.9 | * | * | - | * | - | 0 | - | 0 | 3.0 |
| All Gulf | Rockfish | - | - | 0 | - | - | - | - | - | 0.1 | - | * | 0.1 |
| | All Targets | 0 | 7.8 | 3.0 | 0 | * | - | * | - | 0.9 | - | 0.1 | 11.9 |
| | Sablefish | - | 0.5 | * | - | - | - | - | * | 0 | - | - | 0.5 |
| | 2018 Pacific Cod | 0 | - | 3.1 | * | - | - | - | - | 0 | - | 0.1 | 3.2 |
| Pot | Central Gulf | All Targets | 0 | 0.5 | 3.1 | * | - | - | * | 0 | - | 0.1 | 3.7 |
| | Sablefish | - | 1.1 | 0 | * | - | - | - | - | 0 | - | - | 1.1 |
| | 2019 Pacific Cod | 0 | * | 3.2 | * | - | - | - | - | * | - | 0.1 | 3.3 |
| | All Targets | 0 | 1.1 | 3.2 | * | - | - | - | - | 0 | - | 0.1 | 4.4 |

Continued on next page.

Table 27: Continued

| | Target | Pollock | Sablefish | Pacific Cod | Arrowtooth | Flathead Sole | Rex Sole | Flat Deep | Flat Shallow | Rockfish | Atka Mackerel | Other | All Species | |
|-------|--------------|-------------------|-----------|-------------|------------|---------------|----------|-----------|--------------|----------|---------------|-------|-------------|-------|
| Pot | Western Gulf | Sablefish | - | 0.4 | * | - | - | - | - | 0 | - | - | 0.4 | |
| | | 2018 Pacific Cod | * | * | 4.5 | - | 0 | - | - | * | * | * | 0.1 | 4.6 |
| | | All Targets | * | 0.4 | 4.5 | - | 0 | - | - | * | 0 | * | 0.1 | 5.0 |
| | | Sablefish | - | 0.4 | * | - | - | - | - | - | 0 | - | - | 0.4 |
| | | 2019 Pacific Cod | * | * | 4.3 | - | * | - | - | - | * | - | 0.1 | 4.4 |
| | | All Targets | * | 0.4 | 4.3 | - | * | - | - | - | 0 | - | 0.1 | 4.8 |
| | All Gulf | Sablefish | - | 1.1 | * | - | - | - | - | * | 0 | - | - | 1.2 |
| | | 2018 Pacific Cod | 0 | * | 7.6 | * | 0 | - | - | * | 0 | * | 0.1 | 7.8 |
| | | All Targets | 0 | 1.1 | 7.6 | * | 0 | - | - | * | 0 | * | 0.1 | 8.9 |
| | | Sablefish | - | 1.9 | 0 | * | - | - | - | - | 0 | - | * | 1.9 |
| | | 2019 Pacific Cod | 0 | * | 7.5 | * | * | - | - | - | * | - | 0.2 | 7.7 |
| | | All Targets | 0 | 1.9 | 7.5 | * | * | - | - | - | 0 | - | 0.2 | 9.6 |
| Trawl | Central Gulf | Pollock, Bottom | 13.4 | 0 | 0.8 | 2.2 | 0.3 | 0.1 | 0 | 0.3 | 0.5 | * | 0.2 | 17.8 |
| | | Pollock, Pelagic | 103.2 | 0 | 0 | 0.1 | 0 | 0 | * | 0 | 0.5 | * | 0 | 103.9 |
| | | Sablefish | 0 | 0.2 | 0 | 0 | 0 | 0 | * | * | 0 | - | * | 0.2 |
| | | 2018 Pacific Cod | - | - | * | * | - | - | - | * | - | - | - | * |
| | | Arrowtooth | 1.2 | 0.1 | 0.7 | 13.0 | 1.4 | 0.9 | 0 | 0.5 | 0.6 | 0.1 | 0.5 | 19.1 |
| | | Flathead Sole | - | - | * | * | * | * | * | * | * | - | * | * |
| | | Rex Sole | * | * | * | * | * | * | * | * | * | - | * | * |
| | | Flatfish, Shallow | 0 | * | 0.1 | 0.1 | 0 | 0 | * | 1.0 | 0 | * | 0 | 1.3 |
| | | Rockfish | 0.3 | 0.3 | 0.3 | 0.5 | 0 | 0.1 | 0 | 0 | 21.6 | 0.5 | 0 | 23.8 |
| | | Atka Mackerel | * | - | * | * | * | * | - | * | - | * | - | * |
| | | All Targets | 118.2 | 0.6 | 2.0 | 15.9 | 1.8 | 1.1 | 0.1 | 1.8 | 23.3 | 0.6 | 0.7 | 166.2 |
| | | Pollock, Bottom | 8.3 | 0 | 0.6 | 1.7 | 0.2 | 0.1 | 0 | 0.3 | 0.3 | 0.1 | 0.1 | 11.6 |
| | | Pollock, Pelagic | 78.0 | 0 | 0.1 | 0.1 | 0 | 0 | * | 0 | 0.2 | 0 | 0 | 78.4 |
| | | Sablefish | * | 0.1 | 0 | * | * | * | 0 | * | 0 | - | * | 0.2 |
| | | 2019 Pacific Cod | * | * | 0.1 | 0 | 0 | * | - | 0 | * | - | 0 | 0.1 |
| | | Arrowtooth | 1.2 | 0.2 | 1.0 | 19.7 | 1.8 | 0.9 | 0 | 0.7 | 1.4 | 0 | 0.7 | 27.7 |
| | | Flathead Sole | * | * | * | * | * | * | - | * | * | - | * | * |
| | | Rex Sole | * | * | * | * | * | * | - | * | * | * | * | * |
| | | Flatfish, Shallow | 0.1 | 0 | 0.2 | 0.2 | 0.1 | 0 | * | 1.0 | 0 | 0 | 0 | 1.7 |
| | | Rockfish | 0.2 | 0.4 | 0.1 | 0.5 | 0 | 0.1 | 0 | 0 | 20.2 | 0.2 | 0 | 21.7 |
| | | All Targets | 87.8 | 0.7 | 2.1 | 22.3 | 2.1 | 1.1 | 0 | 2.0 | 22.1 | 0.3 | 0.9 | 141.3 |

Continued on next page.

Table 27: Continued

| | Target | Pollock | Sablefish | Pacific Cod | Arrowtooth | Flathead Sole | Rex Sole | Flat Deep | Flat Shallow | Rockfish | Atka Mackerel | Other | All Species |
|-------|-----------------|---------------------|-----------|----------------|------------|------------------|----------|-----------|-----------------|----------|------------------|-------|-------------|
| Trawl | Western Gulf | Pollock, Bottom | 0.4 | * | 0 | 0 | * | * | - | * | * | * | 0.4 |
| | | Pollock, Pelagic | 29.8 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 29.9 |
| | | 2018 Pacific Cod | 0 | * | 1.3 | * | * | * | - | - | * | * | 1.4 |
| | | Arrowtooth | * | * | * | * | * | * | * | * | * | * | * |
| | | Rex Sole | * | * | * | * | * | * | * | * | - | * | * |
| | | Rockfish | 0.3 | 0.1 | 0 | 0 | 0 | * | 0 | 3.5 | 0.6 | 0 | 4.6 |
| | | Atka | * | * | * | * | * | * | * | * | * | - | * |
| | | Mackerel | | | | | | - | * | * | * | - | * |
| | | All Targets | 30.5 | 0.1 | 1.4 | 0 | 0 | * | 0 | 3.5 | 0.6 | 0 | 36.3 |
| | | Pollock, Bottom | 0.9 | * | 0 | 0 | * | * | - | * | * | - | 1.0 |
| | | Pollock, Pelagic | 20.6 | 0 | 0 | 0.1 | 0 | - | 0 | 0 | * | 0 | 20.8 |
| | | 2019 Pacific Cod | * | * | 1.4 | 0 | 0 | * | - | * | * | * | 1.4 |
| | | Arrowtooth | * | * | * | * | * | * | * | * | * | * | * |
| | | Flathead Sole | * | * | * | * | * | * | - | * | * | - | * |
| | | Rockfish | 0.2 | 0.2 | 0.2 | 0.1 | 0 | 0 | * | 0 | 4.2 | 0.6 | 5.6 |
| | | All Targets | 21.7 | 0.3 | 1.6 | 0.2 | 0 | 0 | * | 0 | 4.2 | 0.6 | 28.7 |

Continued on next page.

Table 27: Continued

| | Target | Pollock | Sablefish | Pacific Cod | Arrowtooth | Flathead Sole | Rex Sole | Flat Deep | Flat Shallow | Rockfish | Atka Mackerel | Other | All Species | |
|----------|-------------------|-------------------|-----------------|-------------|------------|---------------|----------|-----------|--------------|----------|---------------|-------|-------------|-------|
| Trawl | All Gulf | Pollock, Bottom | 13.8 | 0 | 0.8 | 2.2 | 0.3 | 0.1 | 0 | 0.3 | 0.5 | * | 0.2 | 18.2 |
| | | Pollock, Pelagic | 139.9 | 0 | 0.1 | 0.1 | 0 | 0 | * | 0 | 0.6 | 0 | 0 | 140.8 |
| | | Sablefish | 0 | 0.2 | 0 | 0 | 0 | 0 | * | * | 0 | - | * | 0.2 |
| | | 2018 Pacific Cod | 0 | * | 1.3 | * | * | * | * | * | - | * | * | 1.4 |
| | | Arrowtooth | 1.2 | 0.1 | 0.7 | 13.0 | 1.4 | 0.9 | 0 | 0.5 | 0.6 | 0.1 | 0.5 | 19.1 |
| | | Flathead Sole | - | - | * | * | * | * | * | * | * | - | * | * |
| | | Rex Sole | * | * | * | * | * | * | * | * | * | - | * | * |
| | | Flatfish, Shallow | 0 | * | 0.1 | 0.1 | 0 | 0 | * | 1.0 | 0 | * | 0 | 1.3 |
| | | Rockfish | 0.6 | 0.5 | 0.4 | 0.5 | 0 | 0.1 | 0 | 0.1 | 25.1 | 1.1 | 0.1 | 28.5 |
| | | Atka Mackerel | * | * | * | * | * | * | - | * | * | * | - | * |
| | | All Targets | 155.6 | 0.7 | 3.4 | 16.0 | 1.8 | 1.1 | 0.1 | 1.8 | 26.9 | 1.2 | 0.7 | 209.4 |
| | | 2019 | Pollock, Bottom | 9.2 | 0 | 0.6 | 1.7 | 0.2 | 0.1 | 0 | 0.3 | 0.3 | 0.1 | 0.1 |
| | Pollock, Pelagic | | 107.7 | 0 | 0.1 | 0.2 | 0 | 0 | * | 0 | 0.4 | 0 | 0 | 108.4 |
| | Sablefish | | * | 0.1 | 0 | * | * | * | 0 | * | 0 | - | * | 0.2 |
| | Pacific Cod | | * | * | 1.4 | 0 | 0 | * | - | 0 | * | * | 0 | 1.5 |
| | Arrowtooth | | 1.2 | 0.2 | 1.0 | 19.7 | 1.8 | 0.9 | 0 | 0.7 | 1.4 | 0 | 0.7 | 27.7 |
| | Flathead Sole | | * | * | * | * | * | * | - | * | * | - | * | * |
| | Rex Sole | | * | * | * | * | * | * | - | * | * | * | * | * |
| | Flatfish, Shallow | | 0.1 | 0 | 0.2 | 0.2 | 0.1 | 0 | * | 1.0 | 0 | 0 | 0 | 1.7 |
| | Rockfish | | 0.4 | 0.6 | 0.3 | 0.6 | 0 | 0.1 | 0 | 0 | 24.4 | 0.8 | 0 | 27.3 |
| | All Targets | | 118.7 | 1.0 | 3.7 | 22.5 | 2.1 | 1.1 | 0 | 2.0 | 26.5 | 0.9 | 0.9 | 179.3 |
| All Gear | Ctr. Gulf | 2018 All Targets | 118.2 | 4.0 | 6.4 | 15.9 | 1.8 | 1.1 | 0.1 | 1.8 | 23.6 | 0.6 | 0.8 | 174.4 |
| | | 2019 All Targets | 87.8 | 4.3 | 6.6 | 22.3 | 2.1 | 1.1 | 0 | 2.0 | 22.4 | 0.3 | 1.0 | 149.8 |
| | West. Gulf | 2018 All Targets | 30.5 | 1.2 | 6.3 | 0 | 0 | 0 | * | 0 | 3.6 | 0.6 | 0.1 | 42.4 |
| | | 2019 All Targets | 21.7 | 1.3 | 7.2 | 0.2 | 0 | 0 | * | 0 | 4.3 | 0.6 | 0.1 | 35.5 |
| | All Gulf | 2018 All Targets | 155.6 | 10.3 | 13.0 | 16.0 | 1.8 | 1.1 | 0.1 | 1.8 | 27.9 | 1.2 | 1.0 | 229.8 |
| | | 2019 All Targets | 118.7 | 10.7 | 14.2 | 22.5 | 2.1 | 1.1 | 0 | 2.0 | 27.4 | 0.9 | 1.1 | 200.8 |

Notes: Totals may include additional categories. The target is derived from an algorithm used to determine preponderance of catch, accounting for processor, trip, processing mode, NMFS area, and gear. These estimates include only catch counted against federal TACs. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 28: Gulf of Alaska ex-vessel prices in the groundfish fisheries by gear, and species, 2015-2019; calculations based on COAR (\$/lb, round weight).

| | Year | Fixed | Trawl | All Gear |
|-------------------------------|------|-------|-------|----------|
| Pollock | 2015 | 0.088 | 0.119 | 0.119 |
| | 2016 | 0.053 | 0.083 | 0.083 |
| | 2017 | 0.091 | 0.087 | 0.087 |
| | 2018 | 0.036 | 0.123 | 0.123 |
| | 2019 | 0.122 | 0.138 | 0.138 |
| Pacific Cod | 2015 | 0.306 | 0.260 | 0.293 |
| | 2016 | 0.302 | 0.269 | 0.294 |
| | 2017 | 0.335 | 0.328 | 0.333 |
| | 2018 | 0.457 | 0.411 | 0.446 |
| | 2019 | 0.504 | 0.456 | 0.492 |
| Sablefish | 2015 | 4.065 | 3.008 | 3.974 |
| | 2016 | 4.743 | 1.910 | 4.471 |
| | 2017 | 5.314 | 3.926 | 5.179 |
| | 2018 | 3.929 | 2.344 | 3.783 |
| | 2019 | 2.988 | 1.311 | 2.814 |
| Atka Mackerel | 2015 | 0.010 | 0.302 | 0.302 |
| | 2016 | 0.016 | 0.294 | 0.294 |
| | 2017 | 0.016 | 0.387 | 0.387 |
| | 2018 | * | 0.355 | 0.355 |
| | 2019 | - | 0.294 | 0.294 |
| Arrowtooth | 2015 | 0.337 | 0.113 | 0.113 |
| | 2016 | 0.105 | 0.085 | 0.085 |
| | 2017 | 0.088 | 0.108 | 0.108 |
| | 2018 | 0.245 | 0.102 | 0.102 |
| | 2019 | 0.060 | 0.073 | 0.073 |
| Flathead Sole | 2015 | 0.336 | 0.147 | 0.147 |
| | 2016 | * | 0.144 | 0.144 |
| | 2017 | * | 0.135 | 0.135 |
| | 2018 | 0.245 | 0.142 | 0.142 |
| | 2019 | * | 0.139 | 0.139 |
| Rex Sole | 2015 | * | 0.219 | 0.219 |
| | 2016 | - | 0.273 | 0.273 |
| | 2017 | - | 0.199 | 0.199 |
| | 2018 | - | 0.254 | 0.254 |
| | 2019 | - | 0.221 | 0.221 |
| Shallow- water Flatfish | 2015 | 0.131 | 0.198 | 0.198 |
| | 2016 | 0.105 | 0.142 | 0.142 |
| | 2017 | 0.088 | 0.158 | 0.158 |
| | 2018 | 0.245 | 0.160 | 0.160 |
| | 2019 | - | 0.155 | 0.155 |
| Deep-water Flatfish | 2015 | 0.336 | 0.102 | 0.102 |
| | 2016 | 0.105 | 0.098 | 0.098 |
| | 2017 | 0.088 | 0.110 | 0.110 |
| | 2018 | * | 0.108 | 0.108 |
| | 2019 | * | 0.101 | 0.101 |

Continued on next page.

Table 28: Continued

| | Year | Fixed | Trawl | All Gear |
|------------------------|------|-------|-------|----------|
| Pacific Ocean Perch | 2015 | 0.193 | 0.187 | 0.187 |
| | 2016 | 0.010 | 0.186 | 0.186 |
| | 2017 | 0.440 | 0.178 | 0.178 |
| | 2018 | 1.174 | 0.192 | 0.192 |
| | 2019 | 0.415 | 0.196 | 0.196 |
| Northern Rockfish | 2015 | * | 0.177 | 0.177 |
| | 2016 | 0.627 | 0.171 | 0.171 |
| | 2017 | 0.747 | 0.172 | 0.172 |
| | 2018 | 0.843 | 0.180 | 0.180 |
| | 2019 | * | 0.187 | 0.187 |
| Dusky Rockfish | 2015 | 0.367 | 0.179 | 0.182 |
| | 2016 | 0.422 | 0.176 | 0.180 |
| | 2017 | 0.549 | 0.171 | 0.177 |
| | 2018 | 0.576 | 0.185 | 0.188 |
| | 2019 | 0.575 | 0.187 | 0.190 |
| Other Rockfish | 2015 | 0.775 | 0.216 | 0.466 |
| | 2016 | 0.788 | 0.200 | 0.397 |
| | 2017 | 0.850 | 0.195 | 0.443 |
| | 2018 | 0.906 | 0.186 | 0.449 |
| | 2019 | 0.823 | 0.190 | 0.442 |

Notes: Prices are for catch from both federal and state of Alaska fisheries. The unfrozen landings price is calculated as landed value divided by estimated or actual round weight. Prices for catch processed by an at-sea processor without a COAR buying record (e.g., from catcher processors) are set using the prices for the matching species (group), region and gear-types for which buying records exist. Trawl-caught sablefish, rockfish and flatfish in the GOA and trawl-caught Atka mackerel in both the GOA and the GOA are not well represented in the COAR buying records. A price was calculated for these categories from product-report prices; the price in this case is the value of the first wholesale products divided by the calculated round weight and multiplied by a constant 0.4 to correct for value added by processing. The “All Alaska/All gear” column is the average weighted by retained catch. Values are not adjusted for inflation. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 29: Gulf of Alaska ex-vessel value of the groundfish catch by vessel category, gear, and species, 2015-2019; calculations based on COAR (\$ millions).

| | Year | Central Gulf | | | | Western Gulf | | | | All Gulf | | | |
|------------------|------|---------------------|-------|-------|-------------|---------------------|-------|-------|-------------|---------------------|-------|-------|-------------|
| | | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear |
| Pollock | 2015 | - | - | 34.83 | 34.86 | - | - | 7.50 | 7.50 | - | - | 43.56 | 43.60 |
| | 2016 | - | - | 20.33 | 20.35 | - | - | 11.17 | 11.17 | - | - | 32.24 | 32.26 |
| | 2017 | - | - | 25.45 | 25.47 | - | - | 9.41 | 9.42 | - | - | 35.23 | 35.25 |
| | 2018 | - | - | 32.03 | 32.04 | - | - | 8.28 | 8.28 | - | - | 42.24 | 42.25 |
| | 2019 | - | - | 26.68 | 26.68 | - | - | 6.59 | 6.59 | - | - | 36.12 | 36.12 |
| Pacific Cod | 2015 | 6.36 | 15.60 | 8.13 | 30.09 | 3.32 | 11.56 | 4.18 | 19.07 | 10.79 | 27.16 | 12.32 | 50.26 |
| | 2016 | 3.41 | 13.77 | 4.57 | 21.75 | 2.70 | 11.34 | 4.41 | 18.45 | 6.85 | 25.11 | 8.98 | 40.95 |
| | 2017 | 2.82 | 8.41 | 3.86 | 15.09 | 3.15 | 11.16 | 5.49 | 19.80 | 6.32 | 19.57 | 9.35 | 35.24 |
| | 2018 | 1.55 | 3.16 | 1.93 | 6.63 | 1.34 | 4.59 | 1.33 | 7.25 | 3.29 | 7.74 | 3.26 | 14.29 |
| | 2019 | 1.69 | 3.60 | 2.18 | 7.47 | 1.36 | 4.84 | 1.59 | 7.79 | 3.54 | 8.44 | 3.77 | 15.74 |
| Sablefish | 2015 | 32.41 | - | 4.30 | 36.71 | 8.25 | - | 0.27 | 8.52 | 83.57 | - | 5.83 | 89.40 |
| | 2016 | 33.21 | - | 3.56 | 36.76 | 9.48 | - | 0.07 | 9.55 | 85.48 | - | 3.67 | 89.16 |
| | 2017 | 35.51 | 5.18 | 6.28 | 46.97 | 9.29 | 2.63 | 0.57 | 12.49 | 95.74 | 10.98 | 8.50 | 115.22 |
| | 2018 | 24.86 | 4.72 | 3.07 | 32.65 | 6.32 | 3.10 | 0.81 | 10.22 | 72.86 | 10.03 | 5.02 | 87.90 |
| | 2019 | 16.60 | 7.18 | 2.17 | 25.95 | 4.86 | 2.60 | 0.76 | 8.21 | 52.09 | 12.67 | 3.29 | 68.05 |
| Atka Mackerel | 2015 | - | - | 0.37 | 0.37 | - | - | 0.23 | 0.23 | - | - | 0.60 | 0.60 |
| | 2016 | - | - | 0.54 | 0.54 | - | - | 0.09 | 0.09 | - | - | 0.63 | 0.63 |
| | 2017 | - | - | 0.18 | 0.18 | - | - | 0.41 | 0.41 | - | - | 0.59 | 0.59 |
| | 2018 | - | - | 0.56 | 0.56 | - | - | 0.53 | 0.53 | - | - | 1.09 | 1.09 |
| | 2019 | - | - | 0.31 | 0.31 | - | - | 0.42 | 0.42 | - | - | 0.73 | 0.73 |
| Arrowtooth | 2015 | 0.01 | - | 4.16 | 4.17 | 0.01 | - | 0.08 | 0.08 | 0.02 | - | 4.24 | 4.26 |
| | 2016 | 0 | - | 3.27 | 3.28 | 0 | - | 0.13 | 0.13 | 0 | - | 3.41 | 3.41 |
| | 2017 | 0 | - | 5.91 | 5.91 | 0.01 | - | 0.03 | 0.03 | 0.01 | - | 5.94 | 5.95 |
| | 2018 | 0 | - | 3.67 | 3.67 | 0 | - | 0.20 | 0.20 | 0 | - | 3.88 | 3.88 |
| | 2019 | 0 | - | 3.67 | 3.67 | 0 | - | 0.07 | 0.07 | 0 | - | 3.75 | 3.76 |
| Flathead Sole | 2015 | - | - | 0.56 | 0.56 | - | - | 0.04 | 0.04 | - | - | 0.60 | 0.60 |
| | 2016 | - | - | 0.70 | 0.70 | - | - | 0.04 | 0.04 | - | - | 0.74 | 0.74 |
| | 2017 | - | - | 0.56 | 0.56 | - | - | 0.01 | 0.01 | - | - | 0.57 | 0.57 |
| | 2018 | - | - | 0.63 | 0.63 | - | - | 0.04 | 0.04 | - | - | 0.67 | 0.67 |
| | 2019 | - | - | 0.74 | 0.74 | * | - | 0.04 | 0.04 | * | - | 0.77 | 0.77 |

Continued on next page.

Table 29: Continued

| | Year | Central Gulf | | | | Western Gulf | | | | All Gulf | | | |
|-------------------------------|------|---------------------|-----|-------|-------------|---------------------|-----|-------|-------------|---------------------|-----|-------|-------------|
| | | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear |
| Rex Sole | 2015 | - | - | 0.91 | 0.91 | - | - | 0.02 | 0.02 | - | - | 0.93 | 0.93 |
| | 2016 | - | - | 0.97 | 0.97 | - | - | 0.04 | 0.04 | - | - | 1.01 | 1.01 |
| | 2017 | - | - | 0.61 | 0.61 | - | - | 0.01 | 0.01 | - | - | 0.63 | 0.63 |
| | 2018 | - | - | 0.89 | 0.89 | - | - | 0.05 | 0.05 | - | - | 0.94 | 0.94 |
| | 2019 | - | - | 0.74 | 0.74 | - | - | 0.01 | 0.01 | - | - | 0.75 | 0.75 |
| Shallow- water Flatfish | 2015 | 0 | - | 1.27 | 1.28 | - | - | 0.02 | 0.02 | 0 | - | 1.30 | 1.30 |
| | 2016 | * | - | 1.12 | 1.12 | - | - | 0 | 0 | * | - | 1.12 | 1.12 |
| | 2017 | - | - | 0.71 | 0.71 | * | - | 0 | 0 | * | - | 0.72 | 0.72 |
| | 2018 | - | - | 0.88 | 0.88 | * | - | 0.01 | 0.01 | * | - | 0.89 | 0.89 |
| | 2019 | - | - | 0.86 | 0.86 | - | - | 0.01 | 0.01 | - | - | 0.87 | 0.87 |
| Deep- water Flatfish | 2015 | * | - | 0.02 | 0.02 | - | - | 0.01 | 0.01 | * | - | 0.02 | 0.02 |
| | 2016 | * | - | 0.02 | 0.02 | * | - | 0 | 0 | * | - | 0.02 | 0.02 |
| | 2017 | * | - | 0.02 | 0.02 | 0 | - | 0 | 0 | 0 | - | 0.02 | 0.02 |
| | 2018 | * | - | 0.02 | 0.02 | * | - | 0 | 0 | * | - | 0.02 | 0.02 |
| | 2019 | - | - | 0.01 | 0.01 | * | - | 0 | 0 | * | - | 0.01 | 0.01 |
| Pacific Ocean Perch | 2015 | * | - | 5.82 | 5.82 | - | - | 0.80 | 0.80 | * | - | 7.43 | 7.43 |
| | 2016 | - | - | 6.61 | 6.61 | * | - | 1.03 | 1.03 | * | - | 8.79 | 8.79 |
| | 2017 | 0 | - | 5.89 | 5.89 | * | - | 1.03 | 1.03 | 0 | - | 8.00 | 8.00 |
| | 2018 | 0 | - | 7.29 | 7.29 | - | - | 1.33 | 1.33 | 0 | - | 9.99 | 9.99 |
| | 2019 | * | - | 7.53 | 7.53 | * | - | 1.32 | 1.32 | * | - | 10.18 | 10.18 |
| Northern Rockfish | 2015 | * | - | 1.08 | 1.08 | * | - | 0.39 | 0.39 | * | - | 1.47 | 1.47 |
| | 2016 | * | - | 1.19 | 1.19 | 0 | - | 0.04 | 0.04 | 0 | - | 1.23 | 1.23 |
| | 2017 | 0 | - | 0.57 | 0.57 | 0 | - | 0.08 | 0.08 | 0 | - | 0.64 | 0.64 |
| | 2018 | 0 | - | 0.78 | 0.78 | * | - | 0.12 | 0.12 | 0 | - | 0.90 | 0.90 |
| | 2019 | - | - | 0.73 | 0.73 | * | - | 0.34 | 0.34 | * | - | 1.07 | 1.07 |

Continued on next page.

Table 29: Continued

| | | Central Gulf | | | | Western Gulf | | | | All Gulf | | | |
|---------------------|------|---------------------|-----|-------|-------------|---------------------|-----|-------|-------------|---------------------|-----|-------|-------------|
| | Year | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear | Hook And Line | Pot | Trawl | All Gear |
| Dusky Rockfish | 2015 | 0.02 | - | 0.96 | 0.98 | 0 | - | 0.07 | 0.07 | 0.02 | - | 1.03 | 1.05 |
| | 2016 | 0.04 | - | 1.18 | 1.23 | 0 | - | 0.03 | 0.03 | 0.05 | - | 1.21 | 1.27 |
| | 2017 | 0.02 | - | 0.86 | 0.88 | 0.02 | - | 0.03 | 0.05 | 0.04 | - | 0.89 | 0.94 |
| | 2018 | 0.01 | - | 1.13 | 1.14 | 0.01 | - | 0.02 | 0.02 | 0.03 | - | 1.15 | 1.18 |
| | 2019 | 0.02 | - | 0.83 | 0.85 | 0.01 | - | 0.08 | 0.09 | 0.03 | - | 0.91 | 0.94 |
| Other Rockfish | 2015 | 0.65 | - | 0.53 | 1.17 | 0.16 | - | 0.06 | 0.22 | 1.82 | - | 0.63 | 2.44 |
| | 2016 | 0.57 | - | 0.71 | 1.28 | 0.18 | - | 0.07 | 0.25 | 1.72 | - | 0.86 | 2.59 |
| | 2017 | 0.56 | - | 0.55 | 1.12 | 0.20 | - | 0.05 | 0.24 | 1.80 | - | 0.68 | 2.49 |
| | 2018 | 0.56 | - | 0.58 | 1.14 | 0.15 | - | 0.07 | 0.22 | 2.03 | - | 0.73 | 2.77 |
| | 2019 | 0.40 | - | 0.42 | 0.83 | 0.13 | - | 0.07 | 0.20 | 1.71 | - | 0.60 | 2.32 |
| Other Groundfish | 2015 | 0.54 | - | 0.95 | 1.82 | 0.12 | - | 0.01 | 0.15 | 0.79 | - | 1.07 | 2.20 |
| | 2016 | 0.17 | - | 1.05 | 1.36 | 0.08 | - | 0.01 | 0.16 | 0.30 | - | 1.09 | 1.59 |
| | 2017 | 0.10 | - | 0.83 | 1.05 | 0.14 | - | 0.02 | 0.23 | 0.27 | - | 0.85 | 1.31 |
| | 2018 | 0.04 | - | 0.76 | 0.86 | 0.03 | - | 0.05 | 0.16 | 0.11 | - | 0.81 | 1.05 |
| | 2019 | 0.07 | - | 0.95 | 1.13 | 0.02 | - | 0.02 | 0.14 | 0.11 | - | 0.98 | 1.30 |

Notes: Ex-vessel value is calculated by multiplying ex-vessel prices by the retained round weight catch. Refer to Table 18 for a description of the price derivation. The value added by at-sea processing is not included in these estimates of ex-vessel value. All groundfish includes additional species categories. Values are not adjusted for inflation. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 30: Gulf of Alaska vessel and permit counts, ex-vessel value, value per vessel, and percent value of GOA FMP groundfish and all GOA fisheries by processor group, 2015-2019; calculations based on COAR (\$ millions).

| | Year | Vessels | Permits | Ex-vessel Value Per Vessel \$1,000 | Ex-vessel Value \$million | Percent Value, GOA FMP Groundfish | Percent Value, All GOA Fisheries |
|-----------------------|------|---------|---------|---|---------------------------------|---|--|
| Western Gulf Trawl | 2015 | 34 | 14 | 402.68 | 13.69 | 6.85 | 2.14 |
| | 2016 | 40 | 16 | 417.60 | 16.70 | 9.48 | 3.11 |
| | 2017 | 42 | 15 | 407.92 | 17.13 | 8.54 | 2.24 |
| | 2018 | 36 | 12 | 356.82 | 12.85 | 7.93 | 2.38 |
| | 2019 | 35 | 10 | 323.73 | 11.33 | 8.20 | 1.92 |
| Central Gulf Trawl | 2015 | 62 | 18 | 1,035.93 | 64.23 | 32.13 | 10.02 |
| | 2016 | 63 | 17 | 707.03 | 44.54 | 25.28 | 8.30 |
| | 2017 | 58 | 13 | 903.01 | 52.37 | 26.09 | 6.86 |
| | 2018 | 61 | 14 | 892.62 | 54.45 | 33.62 | 10.09 |
| | 2019 | 62 | 16 | 777.38 | 48.20 | 34.86 | 8.19 |
| CV Hook and Line | 2015 | 107 | 32 | 67.17 | 7.19 | 3.59 | 1.12 |
| | 2016 | 99 | 31 | 32.46 | 3.21 | 1.82 | 0.60 |
| | 2017 | 85 | 34 | 35.05 | 2.98 | 1.48 | 0.39 |
| | 2018 | 69 | 27 | 37.99 | 2.62 | 1.62 | 0.49 |
| | 2019 | 73 | 30 | 31.30 | 2.28 | 1.65 | 0.39 |
| CP Hook and Line | 2015 | 11 | 11 | 429.37 | 4.72 | 2.36 | 0.74 |
| | 2016 | 11 | 11 | 292.28 | 3.22 | 1.82 | 0.60 |
| | 2017 | 9 | 9 | 479.69 | 4.32 | 2.15 | 0.57 |
| | 2018 | 3 | 3 | 458.04 | 1.37 | 0.85 | 0.25 |
| | 2019 | 3 | 3 | 552.80 | 1.66 | 1.20 | 0.28 |
| Sablefish IFQ | 2015 | 265 | 37 | 290.05 | 76.86 | 38.45 | 11.99 |
| | 2016 | 268 | 36 | 297.99 | 79.86 | 45.32 | 14.88 |
| | 2017 | 261 | 40 | 386.24 | 100.81 | 50.22 | 13.20 |
| | 2018 | 261 | 39 | 298.46 | 77.90 | 48.09 | 14.44 |
| | 2019 | 249 | 42 | 244.14 | 60.79 | 43.97 | 10.33 |
| Pot | 2015 | 116 | 25 | 237.27 | 27.52 | 13.77 | 4.29 |
| | 2016 | 119 | 26 | 215.28 | 25.62 | 14.54 | 4.77 |
| | 2017 | 110 | 26 | 179.75 | 19.77 | 9.85 | 2.59 |
| | 2018 | 58 | 21 | 135.68 | 7.87 | 4.86 | 1.46 |
| | 2019 | 59 | 16 | 146.60 | 8.65 | 6.26 | 1.47 |
| Jig | 2015 | 273 | 41 | 8.18 | 2.23 | 1.12 | 0.35 |
| | 2016 | 317 | 45 | 4.71 | 1.49 | 0.85 | 0.28 |
| | 2017 | 196 | 37 | 0.81 | 0.16 | 0.08 | 0.02 |
| | 2018 | 193 | 38 | 1.94 | 0.37 | 0.23 | 0.07 |
| | 2019 | 191 | 42 | 3.31 | 0.63 | 0.46 | 0.11 |

Notes: These tables include the value of groundfish purchases reported by processing plants, as well as by other entities, such as markets and restaurants, that normally would not report sales of groundfish products. Keep this in mind when comparing ex-vessel values in this table to gross processed-product values. The data are for catch from both federal and state of Alaska fisheries. The column "permits" is a count of federal groundfish processor permits. Values are not adjusted for inflation.

Source: ADF&G Commercial Operators Annual Reports (COAR); and ADF&G Intent to Operate (ITO) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 31: Gulf of Alaska production of groundfish products by species, 2015-2019, (1,000 metric tons product weight).

| | Product | 2015 | 2016 | 2017 | 2018 | 2019 |
|---------------|----------------|-------|-------|-------|-------|-------|
| Pollock | Whole Fish | 2.30 | 14.49 | 9.34 | 0.56 | 3.12 |
| | Head And Gut | 30.34 | 27.81 | 37.39 | 39.83 | 28.41 |
| | Roe | 3.12 | 0.54 | 1.09 | 2.39 | 1.89 |
| | Deep-Skin | - | * | 0.63 | * | * |
| | Fillets | | | | | |
| | Other Fillets | 9.10 | 14.32 | 15.09 | 13.08 | 8.80 |
| | Surimi | 14.65 | 13.41 | 10.61 | 9.77 | 6.95 |
| | Minced Fish | * | 1.25 | 1.44 | 0.98 | 0.84 |
| | Fishmeal | * | 1.39 | * | 1.11 | * |
| | Other Products | 0.27 | 1.92 | 2.46 | 1.34 | 1.07 |
| | All Products | 59.78 | 75.14 | 78.06 | 69.06 | 51.09 |
| Pacific Cod | Whole Fish | 0.69 | 0.25 | 0.14 | 0.25 | 0.26 |
| | Head And Gut | 19.05 | 8.43 | 6.11 | 1.92 | 3.02 |
| | Roe | 1.34 | 0.78 | 1.04 | 0.37 | 0.38 |
| | Fillets | 6.39 | 7.87 | 6.52 | 2.00 | 2.36 |
| | Other Products | 4.52 | 4.33 | 3.58 | 1.04 | 1.44 |
| | All Products | 32.00 | 21.65 | 17.39 | 5.58 | 7.47 |
| Sablefish | Head And Gut | 5.35 | 5.03 | 5.28 | 5.84 | 6.05 |
| | Other Products | 0.24 | 0.30 | 0.36 | 0.29 | 0.38 |
| | All Products | 5.59 | 5.34 | 5.64 | 6.13 | 6.43 |
| Atka Mackerel | Whole Fish | * | * | * | 0.08 | - |
| | Head And Gut | 0.47 | 0.45 | 0.37 | 0.73 | 0.63 |
| | Other Products | * | * | * | * | * |
| | All Products | 0.47 | 0.45 | 0.37 | 0.81 | 0.63 |
| Arrowtooth | Whole Fish | 0.17 | 1.09 | 3.22 | 2.28 | 2.04 |
| | Head And Gut | 7.59 | 7.05 | 11.28 | 6.24 | 8.97 |
| | Kirimi | * | - | - | - | - |
| | Fillets | * | * | * | * | * |
| | Other Products | 0.08 | 0.14 | * | 0.01 | * |
| | All Products | 7.84 | 8.28 | 14.50 | 8.53 | 11.01 |
| Flathead Sole | Whole Fish | 0.34 | 0.74 | 0.45 | 1.02 | 1.09 |
| | Head And Gut | 0.40 | 0.38 | 0.46 | 0.28 | 0.27 |
| | Kirimi | 0.15 | * | * | * | * |
| | Fillets | * | * | * | * | * |
| | Other Products | * | * | * | * | * |
| | All Products | 0.89 | 1.11 | 0.91 | 1.29 | 1.35 |

Continued on next page.

Table 31: Continued

| | Product | 2015 | 2016 | 2017 | 2018 | 2019 |
|---------------------------|----------------|-------|-------|-------|-------|-------|
| Rex Sole | Whole Fish | 1.73 | 1.43 | 1.27 | 1.55 | 1.44 |
| | Head And Gut | 0.08 | 0.07 | 0.01 | 0.04 | 0.01 |
| | Kirimi | - | - | - | * | - |
| | Fillets | * | * | 0.00 | * | * |
| | Other Products | - | * | * | * | * |
| | All Products | 1.81 | 1.51 | 1.28 | 1.59 | 1.46 |
| Shallow-water Flatfish | Whole Fish | 0.37 | 0.93 | 0.89 | 0.82 | 0.91 |
| | Head And Gut | 0.60 | 0.66 | 0.21 | 0.58 | 0.43 |
| | Kirimi | 0.51 | * | * | * | * |
| | Fillets | 0.04 | 0.02 | * | * | * |
| | Other Products | - | * | * | * | * |
| | All Products | 1.53 | 1.61 | 1.11 | 1.40 | 1.33 |
| Deep-water Flatfish | Whole Fish | * | 0.00 | * | 0.00 | * |
| | Head And Gut | 0.00 | 0.05 | * | 0.01 | * |
| | Fillets | * | * | * | * | * |
| | Other Products | - | - | * | - | - |
| | All Products | 0.00 | 0.05 | * | 0.02 | * |
| Pacific Ocean Perch | Whole Fish | 3.13 | 5.13 | 2.71 | 3.38 | 2.75 |
| | Head And Gut | 6.96 | 8.33 | 8.19 | 10.26 | 10.00 |
| | Other Products | 0.05 | 0.03 | 0.16 | 0.09 | 0.25 |
| | All Products | 10.14 | 13.49 | 11.06 | 13.73 | 13.01 |
| Northern Rockfish | Whole Fish | * | 0.02 | 0.00 | 0.01 | * |
| | Head And Gut | 1.75 | 1.42 | 0.83 | 1.23 | 1.39 |
| | Other Products | 0.02 | 0.08 | 0.01 | 0.00 | 0.00 |
| | All Products | 1.77 | 1.51 | 0.84 | 1.25 | 1.39 |
| Dusky Rockfish | Whole Fish | 0.27 | 0.22 | 0.28 | 0.06 | 0.14 |
| | Head And Gut | 1.02 | 1.36 | 0.97 | 1.42 | 1.17 |
| | Other Products | 0.12 | 0.07 | 0.07 | 0.02 | 0.01 |
| | All Products | 1.41 | 1.65 | 1.31 | 1.50 | 1.32 |

Continued on next page.

Table 31: Continued

| | Product | 2015 | 2016 | 2017 | 2018 | 2019 |
|------------------|------------------|--------|--------|--------|--------|-------|
| Other Rockfish | Whole Fish | 0.42 | 0.61 | 0.54 | 0.62 | 0.45 |
| | Head And Gut | 0.67 | 0.71 | 0.68 | 0.76 | 0.58 |
| | Other Products | 0.14 | 0.13 | 0.13 | 0.09 | 0.09 |
| | All Products | 1.23 | 1.45 | 1.34 | 1.46 | 1.12 |
| Other Groundfish | Whole Fish | 0.10 | 0.04 | 0.01 | 0.01 | 0.23 |
| | Head And Gut | 0.17 | 0.06 | 0.07 | 0.02 | 0.05 |
| | Kirimi | * | - | * | - | - |
| | Fillet | * | - | - | * | - |
| | Fishmeal | * | * | * | * | * |
| | Other Products | 0.53 | 0.49 | 0.35 | 0.32 | 0.40 |
| | All Products | 0.80 | 0.59 | 0.43 | 0.36 | 0.68 |
| All Species | Whole Fish | 9.54 | 24.94 | 18.84 | 10.64 | 12.43 |
| | Head And Gut | 74.46 | 61.82 | 71.85 | 69.16 | 60.97 |
| | Kirimi | 0.66 | * | * | * | * |
| | Roe | 4.46 | 1.32 | 2.13 | 2.76 | 2.27 |
| | Fillet | 6.43 | 7.89 | 6.53 | 2.00 | 2.36 |
| | Deep-Skin Fillet | - | * | 0.63 | * | * |
| | Other Fillet | 9.10 | 14.32 | 15.09 | 13.08 | 8.80 |
| | Surimi | 14.65 | 13.41 | 10.61 | 9.77 | 6.95 |
| | Minced Fish | * | 1.25 | 1.44 | 0.98 | 0.84 |
| | Fishmeal | * | 1.39 | * | 1.11 | * |
| | Other Products | 5.97 | 7.49 | 7.11 | 3.20 | 3.65 |
| | All Products | 125.26 | 133.84 | 134.23 | 112.71 | 98.28 |

Notes: Total includes additional species not listed in the production details as well as confidential data from Tables 28 and 29. These estimates are for catch from both federal and state of Alaska fisheries. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 32: Gulf of Alaska gross value of groundfish products by species, 2015-2019, (\$ million).

| | Product | 2015 | 2016 | 2017 | 2018 | 2019 |
|------------------|----------------|-------|-------|-------|-------|------|
| Pollock | Whole Fish | 2.2 | 7.0 | 5.7 | 0.5 | 1.9 |
| | Head And Gut | 40.6 | 23.3 | 30.1 | 36.2 | 32.6 |
| | Roe | 8.4 | 1.7 | 4.3 | 9.7 | 5.9 |
| | Deep-Skin | - | * | 2.1 | * | * |
| | Fillets | - | * | 2.1 | * | * |
| | Other Fillets | 26.1 | 39.8 | 32.9 | 33.6 | 26.9 |
| | Surimi | 27.6 | 28.7 | 17.7 | 20.7 | 16.6 |
| | Minced Fish | * | 1.5 | 1.5 | 1.3 | 1.4 |
| | Fishmeal | * | 2.2 | * | 1.5 | * |
| | Other Products | 0.2 | 2.2 | 2.5 | 1.4 | 0.7 |
| | All Products | 105.1 | 106.4 | 96.7 | 104.9 | 85.9 |
| Pacific Cod | Whole Fish | 0.8 | 0.5 | 0.2 | 0.5 | 0.8 |
| | Head And Gut | 52.2 | 22.7 | 20.3 | 8.6 | 8.5 |
| | Roe | 2.5 | 1.3 | 1.6 | 1.1 | 0.9 |
| | Fillets | 37.2 | 57.3 | 45.3 | 19.2 | 21.5 |
| | Other Products | 9.6 | 9.9 | 8.0 | 2.6 | 3.5 |
| | All Products | 102.5 | 91.8 | 75.5 | 31.9 | 35.2 |
| Sablefish | Head And Gut | 81.4 | 91.6 | 108.2 | 88.0 | 66.1 |
| | Other Products | 1.9 | 2.4 | 3.1 | 1.9 | 5.0 |
| | All Products | 83.2 | 94.1 | 111.3 | 89.9 | 71.2 |
| Atka Mackerel | Whole Fish | * | * | * | 0.2 | - |
| | Head And Gut | 1.3 | 1.2 | 1.2 | 2.3 | 1.6 |
| | Other Products | * | * | * | * | * |
| | All Products | 1.3 | 1.2 | 1.2 | 2.5 | 1.6 |
| Arrowtooth | Whole Fish | 0.1 | 1.1 | 4.9 | 1.5 | 0.8 |
| | Head And Gut | 9.9 | 12.1 | 26.7 | 9.3 | 11.0 |
| | Kirimi | * | - | - | - | - |
| | Fillets | * | * | * | * | * |
| | Other Products | 0.1 | 0.1 | * | 0.0 | * |
| | All Products | 10.2 | 13.3 | 31.5 | 10.8 | 11.7 |
| Flathead Sole | Whole Fish | 0.5 | 0.8 | 0.6 | 1.2 | 0.9 |
| | Head And Gut | 0.6 | 0.7 | 0.7 | 0.6 | 0.5 |
| | Kirimi | 0.4 | * | * | * | * |
| | Fillets | * | * | * | * | * |
| | Other Products | * | * | * | * | * |
| | All Products | 1.5 | 1.5 | 1.3 | 1.8 | 1.4 |

Continued on next page.

Table 32: Continued

| | Product | 2015 | 2016 | 2017 | 2018 | 2019 |
|---------------------------|----------------|------|------|------|------|------|
| Rex Sole | Whole Fish | 3.2 | 3.2 | 2.8 | 3.3 | 3.1 |
| | Head And Gut | 0.2 | 0.2 | 0.0 | 0.1 | 0.0 |
| | Kirimi | - | - | - | * | - |
| | Fillets | * | * | 0.0 | * | * |
| | Other Products | - | * | * | * | * |
| | All Products | 3.4 | 3.4 | 2.8 | 3.4 | 3.2 |
| Shallow-water Flatfish | Whole Fish | 0.9 | 1.1 | 1.2 | 1.1 | 0.9 |
| | Head And Gut | 1.0 | 1.5 | 0.3 | 1.2 | 0.9 |
| | Kirimi | 1.2 | * | * | * | * |
| | Fillets | 0.2 | 0.1 | * | * | * |
| | Other Products | - | * | * | * | * |
| | All Products | 3.3 | 2.7 | 1.5 | 2.3 | 1.8 |
| Deep-water Flatfish | Whole Fish | * | 0.0 | * | 0.0 | * |
| | Head And Gut | 0.0 | 0.1 | * | 0.0 | * |
| | Fillets | * | * | * | * | * |
| | Other Products | - | - | * | - | - |
| | All Products | 0.0 | 0.1 | * | 0.0 | * |
| Pacific Ocean Perch | Whole Fish | 5.0 | 7.4 | 3.3 | 4.0 | 2.8 |
| | Head And Gut | 16.3 | 17.0 | 24.1 | 27.7 | 19.1 |
| | Other Products | 0.3 | 0.2 | 0.8 | 0.4 | 1.9 |
| | All Products | 21.5 | 24.6 | 28.1 | 32.1 | 23.8 |
| Northern Rockfish | Whole Fish | * | 0.0 | 0.0 | 0.0 | * |
| | Head And Gut | 3.7 | 4.1 | 1.8 | 2.8 | 2.5 |
| | Other Products | 0.1 | 0.5 | 0.1 | 0.0 | 0.0 |
| | All Products | 3.8 | 4.6 | 1.9 | 2.8 | 2.5 |
| Dusky Rockfish | Whole Fish | 0.6 | 0.4 | 0.4 | 0.1 | 0.2 |
| | Head And Gut | 2.6 | 3.9 | 2.1 | 3.6 | 2.3 |
| | Other Products | 0.5 | 0.5 | 0.5 | 0.1 | 0.1 |
| | All Products | 3.7 | 4.8 | 3.0 | 3.8 | 2.6 |

Continued on next page.

Table 32: Continued

| | Product | 2015 | 2016 | 2017 | 2018 | 2019 |
|------------------|-------------------|-------|-------|-------|-------|-------|
| Other Rockfish | Whole Fish | 1.6 | 2.3 | 2.4 | 2.5 | 1.8 |
| | Head And Gut | 2.8 | 2.9 | 3.0 | 3.2 | 1.9 |
| | Other Products | 0.7 | 0.8 | 0.8 | 1.0 | 1.1 |
| | All Products | 5.2 | 6.0 | 6.2 | 6.7 | 4.8 |
| Other Groundfish | Whole Fish | 0.2 | 0.1 | 0.0 | 0.0 | 0.8 |
| | Head And Gut | 0.4 | 0.2 | 0.2 | 0.1 | 0.2 |
| | Kirimi | * | - | * | - | - |
| | Fillets | * | - | - | * | - |
| | Fishmeal | * | * | * | * | * |
| | Other Products | 3.0 | 2.9 | 1.7 | 1.4 | 1.7 |
| | All Products | 3.6 | 3.2 | 1.9 | 1.5 | 2.7 |
| All Species | Whole Fish | 15.3 | 24.0 | 21.4 | 14.9 | 14.0 |
| | Head And Gut | 213.0 | 181.6 | 218.9 | 183.6 | 147.3 |
| | Kirimi | 1.5 | * | * | * | * |
| | Roe | 10.9 | 3.0 | 5.9 | 10.7 | 6.8 |
| | Fillets | 37.4 | 57.4 | 45.3 | 19.2 | 21.5 |
| | Deep-Skin Fillets | - | * | 2.1 | * | * |
| | Other Fillets | 26.1 | 39.8 | 32.9 | 33.6 | 26.9 |
| | Surimi | 27.6 | 28.7 | 17.7 | 20.7 | 16.6 |
| | Minced Fish | * | 1.5 | 1.5 | 1.3 | 1.4 |
| | Fishmeal | * | 2.2 | * | 1.5 | * |
| | Other Products | 16.5 | 19.5 | 17.4 | 8.8 | 13.9 |
| | All Products | 348.3 | 357.8 | 363.0 | 294.4 | 248.3 |

Notes: Total includes additional species not listed in the production details as well as confidential data from Tables 28 and 29. These estimates are for catch from both federal and state of Alaska fisheries. Values are not adjusted for inflation. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 33: Gulf of Alaska price per pound of groundfish products by species, 2015-2019, (\$/lb).

| | Product | 2015 | 2016 | 2017 | 2018 | 2019 |
|------------------------|----------------|------|------|------|------|------|
| Pollock | Whole Fish | 0.43 | 0.22 | 0.28 | 0.37 | 0.27 |
| | Head And Gut | 0.61 | 0.38 | 0.36 | 0.41 | 0.52 |
| | Roe | 1.22 | 1.39 | 1.80 | 1.83 | 1.42 |
| | Deep-Skin | - | * | 1.49 | * | * |
| | Fillets | | | | | |
| | Other Fillets | 1.30 | 1.26 | 0.99 | 1.16 | 1.39 |
| | Surimi | 0.85 | 0.97 | 0.76 | 0.96 | 1.08 |
| | Minced Fish | * | 0.53 | 0.46 | 0.61 | 0.75 |
| | Fishmeal | * | 0.71 | * | 0.62 | * |
| | Other Products | 0.39 | 0.51 | 0.45 | 0.49 | 0.28 |
| | All Products | 0.80 | 0.64 | 0.56 | 0.69 | 0.76 |
| Pacific Cod | Whole Fish | 0.56 | 0.95 | 0.81 | 0.86 | 1.42 |
| | Head And Gut | 1.24 | 1.22 | 1.51 | 2.04 | 1.28 |
| | Roe | 0.86 | 0.78 | 0.68 | 1.28 | 1.04 |
| | Fillets | 2.64 | 3.30 | 3.15 | 4.35 | 4.12 |
| | Other Products | 0.97 | 1.04 | 1.02 | 1.12 | 1.09 |
| | All Products | 1.45 | 1.92 | 1.97 | 2.59 | 2.14 |
| Sablefish | Head And Gut | 6.90 | 8.26 | 9.30 | 6.83 | 4.96 |
| | Other Products | 3.50 | 3.64 | 3.92 | 2.99 | 5.94 |
| | All Products | 6.75 | 7.99 | 8.95 | 6.65 | 5.02 |
| Atka Mackerel | Whole Fish | * | * | * | 0.97 | - |
| | Head And Gut | 1.24 | 1.21 | 1.47 | 1.42 | 1.17 |
| | Other Products | * | * | * | * | * |
| | All Products | 1.24 | 1.21 | 1.47 | 1.38 | 1.17 |
| Arrowtooth | Whole Fish | 0.27 | 0.46 | 0.69 | 0.30 | 0.17 |
| | Head And Gut | 0.59 | 0.78 | 1.07 | 0.67 | 0.55 |
| | Fillets | * | * | * | * | * |
| | Other Products | 0.63 | 0.45 | * | 0.38 | * |
| | All Products | 0.59 | 0.73 | 0.99 | 0.57 | 0.48 |
| Flathead Sole | Whole Fish | 0.71 | 0.49 | 0.59 | 0.53 | 0.39 |
| | Head And Gut | 0.63 | 0.86 | 0.74 | 0.95 | 0.87 |
| | Fillets | * | * | * | * | * |
| | Other Products | * | * | * | * | * |
| | All Products | 0.74 | 0.62 | 0.67 | 0.62 | 0.49 |
| Rex Sole | Whole Fish | 0.84 | 1.01 | 0.99 | 0.97 | 0.98 |
| | Head And Gut | 1.30 | 1.33 | 1.45 | 1.35 | 1.44 |
| | Fillets | * | * | 0.34 | * | * |
| | Other Products | - | * | * | * | * |
| | All Products | 0.86 | 1.02 | 0.99 | 0.98 | 0.98 |
| Shallow-water Flatfish | Whole Fish | 1.06 | 0.55 | 0.61 | 0.61 | 0.44 |
| | Head And Gut | 0.75 | 1.03 | 0.68 | 0.90 | 0.93 |
| | Fillets | 2.37 | 2.08 | * | * | * |
| | Other Products | - | * | * | * | * |
| | All Products | 0.97 | 0.77 | 0.63 | 0.73 | 0.60 |

Continued on next page.

Table 33: Continued

| | Product | 2015 | 2016 | 2017 | 2018 | 2019 |
|------------------------|----------------|------|------|------|------|------|
| Deep-water Flatfish | Whole Fish | * | 0.50 | * | 0.45 | * |
| | Head And Gut | 1.09 | 0.73 | * | 0.39 | * |
| | Fillet | * | * | * | * | * |
| | Other Products | - | - | * | - | - |
| | All Products | 1.09 | 0.72 | * | 0.40 | * |
| Pacific Ocean Perch | Whole Fish | 0.72 | 0.65 | 0.55 | 0.54 | 0.46 |
| | Head And Gut | 1.06 | 0.93 | 1.33 | 1.22 | 0.87 |
| | Other Products | 2.36 | 2.70 | 2.18 | 2.02 | 3.36 |
| | All Products | 0.96 | 0.83 | 1.15 | 1.06 | 0.83 |
| Northern Rockfish | Whole Fish | * | 0.72 | 0.76 | 0.42 | * |
| | Head And Gut | 0.97 | 1.32 | 1.01 | 1.04 | 0.83 |
| | Other Products | 1.73 | 2.82 | 2.11 | 1.96 | 2.81 |
| | All Products | 0.98 | 1.38 | 1.03 | 1.03 | 0.83 |
| Dusky Rockfish | Whole Fish | 1.07 | 0.87 | 0.62 | 0.72 | 0.77 |
| | Head And Gut | 1.14 | 1.30 | 1.00 | 1.14 | 0.88 |
| | Other Products | 1.97 | 3.08 | 2.98 | 2.48 | 3.04 |
| | All Products | 1.20 | 1.31 | 1.02 | 1.15 | 0.88 |
| Other Rockfish | Whole Fish | 1.74 | 1.72 | 1.98 | 1.86 | 1.80 |
| | Head And Gut | 1.92 | 1.85 | 2.01 | 1.93 | 1.50 |
| | Other Products | 2.46 | 2.87 | 2.91 | 4.76 | 5.41 |
| | All Products | 1.92 | 1.89 | 2.08 | 2.08 | 1.95 |
| Other Groundfish | Whole Fish | 1.08 | 1.26 | 2.19 | 0.94 | 1.66 |
| | Head And Gut | 0.93 | 1.61 | 1.41 | 1.84 | 1.79 |
| | Fillet | * | - | - | * | - |
| | Fishmeal | * | * | * | * | * |
| | Other Products | 2.58 | 2.71 | 2.18 | 2.01 | 1.89 |
| | All Products | 2.03 | 2.50 | 2.06 | 1.96 | 1.81 |

Notes: These estimates are based on data from both federal and state of Alaska fisheries. Prices based on confidential data have been excluded. Values are not adjusted for inflation. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 34: Gulf of Alaska total product value per round metric ton of retained catch by species and year, 2015-2019, (\$/mt).

| Species | 2015 | 2016 | 2017 | 2018 | 2019 |
|---------------|-------|--------|--------|-------|-------|
| Pollock | 636 | 616 | 542 | 684 | 735 |
| Sablefish | 8,130 | 10,363 | 11,032 | 8,526 | 6,488 |
| Pacific Cod | 1,318 | 1,452 | 1,571 | 2,194 | 2,421 |
| Flatfish | 777 | 863 | 1,233 | 795 | 641 |
| Rockfish | 1,280 | 1,297 | 1,451 | 1,443 | 1,091 |
| Atka Mackerel | 1,471 | 1,243 | 1,734 | 1,785 | 1,443 |
| Other | 1,638 | 1,907 | 1,496 | 1,440 | 2,085 |

Notes: These estimates include the product value of catch from both federal and state of Alaska fisheries. Values are not adjusted for inflation. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region At-sea and Shoreside Production Reports; ADF&G Commercial Operators Annual Reports (COAR); and NMFS Alaska Region Blend and Catch-accounting System estimates. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 35: Gulf of Alaska number of processors, gross product value, value per processor, and percent value of GOA FMP groundfish of processed groundfish by processor group, 2015-2019, (\$ millions).

| | Year | Processors | Wholesale Value (\$million) | Wholesale Value Per Processor (\$1,000) | Percent Value, GOA FMP Groundfish |
|---------------------------------------|------|------------|-----------------------------|---|-----------------------------------|
| Central and Western Gulf Trawl | 2015 | 9 | 34.98 | 3,886.87 | 7.98 |
| | 2016 | 15 | 33.46 | 2,230.49 | 7.36 |
| | 2017 | 11 | 50.35 | 4,576.89 | 10.96 |
| | 2018 | 9 | 34.64 | 3,849.20 | 8.30 |
| | 2019 | 11 | 28.78 | 2,616.46 | 7.88 |
| CP Hook and Line | 2015 | 11 | 9.53 | 865.98 | 2.17 |
| | 2016 | 12 | 7.47 | 622.09 | 1.64 |
| | 2017 | 11 | 10.22 | 929.25 | 2.22 |
| | 2018 | 7 | 2.94 | 420.58 | 0.71 |
| | 2019 | 7 | 2.46 | 351.83 | 0.67 |
| Sablefish IFQ | 2015 | 5 | 3.31 | 662.12 | 0.76 |
| | 2016 | 5 | 4.48 | 895.40 | 0.99 |
| | 2017 | 6 | 5.38 | 896.88 | 1.17 |
| | 2018 | 5 | 4.35 | 870.40 | 1.04 |
| | 2019 | 7 | 3.89 | 555.68 | 1.06 |
| Motherships & Inshore Floating Procs. | 2015 | 5 | 89.47 | 17,893.98 | 20.42 |
| | 2016 | 5 | 116.70 | 23,339.44 | 25.68 |
| | 2017 | 5 | 114.39 | 22,878.90 | 24.90 |
| | 2018 | 3 | 113.17 | 37,724.78 | 27.12 |
| | 2019 | 3 | 106.14 | 35,379.37 | 29.04 |
| Kodiak Shoreside Procs. | 2015 | 9 | 167.74 | 18,637.43 | 38.29 |
| | 2016 | 8 | 145.15 | 18,143.79 | 31.94 |
| | 2017 | 8 | 139.67 | 17,458.44 | 30.40 |
| | 2018 | 8 | 138.62 | 17,328.11 | 33.22 |
| | 2019 | 6 | 110.54 | 18,423.03 | 30.25 |
| Southcentral Gulf Shoreside Procs. | 2015 | 11 | 35.88 | 3,261.90 | 8.19 |
| | 2016 | 12 | 38.33 | 3,194.44 | 8.43 |
| | 2017 | 10 | 39.29 | 3,929.12 | 8.55 |
| | 2018 | 11 | 29.05 | 2,640.61 | 6.96 |
| | 2019 | 10 | 23.91 | 2,391.07 | 6.54 |
| Southeastern Gulf Shoreside Procs. | 2015 | 11 | 31.57 | 2,869.74 | 7.21 |
| | 2016 | 11 | 33.46 | 3,041.43 | 7.36 |
| | 2017 | 14 | 40.24 | 2,874.21 | 8.76 |
| | 2018 | 14 | 34.41 | 2,458.15 | 8.25 |
| | 2019 | 16 | 26.43 | 1,652.10 | 7.23 |
| Western Gulf Shoreside Procs. | 2015 | 3 | 65.63 | 21,876.77 | 14.98 |
| | 2016 | 3 | 75.43 | 25,144.97 | 16.60 |
| | 2017 | 3 | 59.88 | 19,959.23 | 13.03 |
| | 2018 | 2 | * | * | * |
| | 2019 | 3 | 63.28 | 21,092.43 | 17.32 |

Notes: The data are for catch from both federal and state of Alaska fisheries. The processor groups are defined as follows: “Western and Central Gulf Trawl” are the processors in the Western and Central Gulf. “CP Hook and Line” are the hook and line catcher processors. “Sablefish IFQ” are processors processing sablefish IFQ. Values are not adjusted for inflation.

Source: ADF&G Commercial Operators Annual Reports (COAR); and ADF&G Intent to Operate (ITO) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 36: Gulf of Alaska number of vessels, average and median length, and average and median capacity (tonnage) of vessels that caught groundfish by vessel type, and gear, 2015-2019.

| | Year | Vessels | Average Length (feet) | Median Length (feet) | Average Capacity (tons) | Median Capacity (tons) |
|--------------------------------------|------|---------|-----------------------------|----------------------------|-------------------------------|------------------------------|
| Central and Western Gulf Trawl | 2015 | 78 | 87 | 87 | 112 | 98.0 |
| | 2016 | 84 | 87 | 88 | 110 | 98.0 |
| | 2017 | 79 | 90 | 88 | 122 | 103.0 |
| | 2018 | 78 | 88 | 88 | 113 | 103.0 |
| | 2019 | 76 | 89 | 87 | 127 | 105.0 |
| CV Hook and Line | 2015 | 64 | 42 | 42 | 25 | 24.0 |
| | 2016 | 58 | 44 | 42 | 28 | 24.0 |
| | 2017 | 49 | 43 | 42 | 26 | 24.0 |
| | 2018 | 33 | 44 | 42 | 27 | 24.0 |
| | 2019 | 24 | 45 | 43 | 27 | 24.0 |
| CP Hook and Line | 2015 | 11 | 130 | 128 | 286 | 143.0 |
| | 2016 | 10 | 147 | 136 | 290 | 132.0 |
| | 2017 | 10 | 147 | 136 | 344 | 132.0 |
| | 2018 | 3 | 108 | 136 | 244 | 153.0 |
| | 2019 | 2 | 146 | 136 | 261 | 132.0 |
| Sablefish IFQ | 2015 | 264 | 57 | 58 | 46 | 39.0 |
| | 2016 | 265 | 57 | 57 | 48 | 39.0 |
| | 2017 | 259 | 56 | 57 | 48 | 36.0 |
| | 2018 | 260 | 57 | 57 | 48 | 39.0 |
| | 2019 | 237 | 57 | 57 | 49 | 36.0 |
| Pot | 2015 | 116 | 61 | 58 | 55 | 48.0 |
| | 2016 | 118 | 60 | 58 | 57 | 48.0 |
| | 2017 | 108 | 61 | 58 | 56 | 48.0 |
| | 2018 | 58 | 66 | 58 | 62 | 51.0 |
| | 2019 | 63 | 65 | 58 | 65 | 48.0 |
| Jig | 2015 | 264 | 40 | 40 | 16 | 14.0 |
| | 2016 | 305 | 41 | 41 | 17 | 16.0 |
| | 2017 | 186 | 39 | 40 | 15 | 14.0 |
| | 2018 | 182 | 39 | 40 | 14 | 12.0 |
| | 2019 | 186 | 40 | 41 | 15 | 15.0 |
| No Fleet/ Other | 2015 | 16 | 45 | 40 | 24 | 11.5 |
| | 2016 | 14 | 47 | 48 | 23 | 24.0 |
| | 2017 | 8 | 41 | 38 | 15 | 11.0 |
| | 2018 | 8 | 39 | 35 | 14 | 10.0 |
| | 2019 | 22 | 46 | 47 | 31 | 27.0 |

Notes: These estimates include only vessels fishing part of federal TACs. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; CFEC gross earnings (fish tickets) file; NMFS Alaska Region groundfish observer data; NMFS Alaska Region permit data; CFEC vessel registration file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 37: Gulf of Alaska number of vessels that caught groundfish by month, vessel type, and gear, 2015-2019.

| | Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Year | |
|--------------------|-------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|
| Catcher Vessels | Hook & Line | 2015 | 78 | 122 | 208 | 259 | 304 | 150 | 115 | 118 | 141 | 126 | 65 | 65 | 552 |
| | | 2016 | 87 | 141 | 209 | 263 | 259 | 148 | 146 | 175 | 153 | 117 | 51 | 23 | 575 |
| | | 2017 | 58 | 91 | 130 | 199 | 179 | 149 | 137 | 99 | 136 | 120 | 69 | 24 | 448 |
| | | 2018 | 12 | 53 | 104 | 125 | 184 | 135 | 126 | 145 | 190 | 117 | 110 | 19 | 432 |
| | | 2019 | 32 | 61 | 148 | 173 | 152 | 135 | 123 | 130 | 116 | 114 | 74 | 11 | 422 |
| | Pot | 2015 | 78 | 77 | 100 | 51 | - | - | - | - | 13 | 17 | 19 | 24 | 116 |
| | | 2016 | 80 | 86 | 78 | 66 | - | - | - | - | 15 | 24 | 29 | 31 | 118 |
| | | 2017 | 74 | 86 | 89 | 91 | 16 | 11 | 9 | 5 | 11 | 18 | 15 | 8 | 127 |
| | | 2018 | 24 | 30 | 46 | 10 | 14 | 11 | 5 | 6 | 16 | 14 | 13 | 5 | 78 |
| | | 2019 | 24 | 24 | 39 | 15 | 18 | 13 | 4 | 7 | 22 | 25 | 18 | 3 | 88 |
| | Trawl | 2015 | 40 | 60 | 65 | 57 | 30 | 13 | 6 | 15 | 52 | 54 | 18 | 1 | 68 |
| | | 2016 | 49 | 54 | 59 | 42 | 29 | 18 | 4 | 45 | 58 | 61 | 34 | 2 | 70 |
| | | 2017 | 37 | 45 | 61 | 42 | 21 | 17 | 5 | 4 | 53 | 60 | 35 | 1 | 68 |
| | | 2018 | 12 | 53 | 51 | 25 | 19 | 14 | 2 | 35 | 59 | 61 | 28 | 2 | 69 |
| | | 2019 | 32 | 47 | 50 | 25 | 25 | 22 | 1 | 20 | 47 | 50 | 21 | - | 65 |
| | All Gear | 2015 | 192 | 254 | 361 | 363 | 334 | 163 | 121 | 133 | 206 | 196 | 102 | 90 | 702 |
| | | 2016 | 210 | 272 | 334 | 368 | 288 | 166 | 150 | 219 | 226 | 201 | 111 | 56 | 724 |
| | | 2017 | 169 | 218 | 264 | 328 | 213 | 175 | 149 | 107 | 199 | 193 | 118 | 33 | 599 |
| | | 2018 | 48 | 136 | 193 | 158 | 216 | 158 | 133 | 184 | 264 | 191 | 148 | 26 | 546 |
| | | 2019 | 88 | 132 | 229 | 209 | 193 | 168 | 127 | 156 | 183 | 185 | 111 | 14 | 538 |
| Catcher Processors | Hook & Line | 2015 | 3 | 5 | 6 | 4 | 6 | 3 | 2 | 1 | 3 | 3 | 2 | 1 | 12 |
| | | 2016 | 1 | 2 | 4 | 5 | 4 | 4 | 1 | 2 | 4 | 4 | 2 | 4 | 12 |
| | | 2017 | - | 3 | 7 | 7 | 3 | 2 | 3 | 1 | 6 | 3 | 1 | 1 | 11 |
| | | 2018 | - | 2 | 5 | 3 | 1 | 2 | 1 | 1 | 3 | - | 1 | - | 7 |
| | | 2019 | - | 1 | 1 | 1 | 2 | 2 | 2 | 1 | 4 | 2 | 2 | - | 8 |
| | Trawl | 2015 | - | 1 | 1 | 4 | 4 | 3 | 9 | 4 | 4 | 1 | 2 | 1 | 10 |
| | | 2016 | - | 1 | - | 2 | 2 | 2 | 12 | 7 | 4 | 2 | 2 | 2 | 14 |
| | | 2017 | - | 1 | 2 | 2 | 2 | 4 | 10 | 6 | 4 | 4 | 2 | 1 | 11 |
| | | 2018 | - | - | 1 | 2 | 1 | 5 | 8 | 4 | 4 | 1 | 1 | 1 | 9 |
| | | 2019 | - | - | 1 | 1 | 1 | 3 | 6 | 6 | 5 | 4 | 2 | 1 | 11 |
| | All Gear | 2015 | 3 | 6 | 7 | 8 | 10 | 6 | 11 | 5 | 7 | 4 | 4 | 2 | 22 |
| | | 2016 | 1 | 3 | 4 | 7 | 6 | 6 | 13 | 9 | 8 | 6 | 4 | 6 | 26 |
| | | 2017 | - | 4 | 9 | 9 | 5 | 6 | 13 | 7 | 10 | 7 | 3 | 2 | 22 |
| | | 2018 | - | 2 | 6 | 5 | 2 | 7 | 9 | 5 | 7 | 1 | 2 | 1 | 16 |
| | | 2019 | - | 1 | 2 | 2 | 3 | 5 | 8 | 7 | 9 | 6 | 4 | 1 | 19 |

Notes: These estimates include only vessels fishing part of federal TACs. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; CFEC gross earnings (fish tickets) file; NMFS Alaska Region groundfish observer data; NMFS Alaska Region permit data; CFEC vessel registration file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 38: Gulf of Alaska catcher vessel (excluding catcher/processors) weeks of fishing groundfish by vessel-length class (feet), gear, and target, 2015-2019.

| | Year | Hook & Line | | Pot | | Trawl | | All Gear | |
|----------------|------|-------------|----------|-------|----------|-------|----------|----------|----------|
| | | <60ft | 60-124ft | <60ft | 60-124ft | <60ft | 60-124ft | <60ft | 60-124ft |
| Pollock | 2015 | - | - | - | - | 237 | 569 | 237 | 569 |
| | 2016 | - | - | - | - | 289 | 527 | 289 | 527 |
| | 2017 | - | - | - | - | 180 | 526 | 180 | 526 |
| | 2018 | - | - | - | - | 187 | 487 | 187 | 487 |
| | 2019 | - | - | - | - | 142 | 389 | 142 | 389 |
| Sablefish | 2015 | 1,258 | 346 | - | - | 3 | 19 | 1,261 | 365 |
| | 2016 | 1,279 | 361 | - | - | 1 | 11 | 1,280 | 372 |
| | 2017 | 1,312 | 274 | 129 | 45 | - | 9 | 1,441 | 328 |
| | 2018 | 1,459 | 287 | 134 | 57 | - | 18 | 1,593 | 362 |
| | 2019 | 1,318 | 298 | 198 | 62 | - | 12 | 1,516 | 372 |
| Pacific Cod | 2015 | 1,830 | 14 | 895 | 238 | 145 | 111 | 2,870 | 363 |
| | 2016 | 1,392 | 7 | 945 | 228 | 118 | 97 | 2,455 | 332 |
| | 2017 | 572 | - | 880 | 209 | 109 | 58 | 1,561 | 267 |
| | 2018 | 374 | 1 | 190 | 93 | 29 | 3 | 593 | 97 |
| | 2019 | 392 | 1 | 171 | 80 | 41 | 7 | 604 | 88 |
| Flatfish | 2015 | - | - | - | - | 0 | 77 | 0 | 77 |
| | 2016 | - | - | - | - | 2 | 160 | 2 | 160 |
| | 2017 | - | - | - | - | - | 102 | - | 102 |
| | 2018 | - | - | - | - | 26 | 136 | 26 | 136 |
| | 2019 | - | - | - | - | 17 | 165 | 17 | 165 |
| Rockfish | 2015 | 553 | 6 | - | - | 4 | 96 | 557 | 102 |
| | 2016 | 774 | 3 | - | - | 3 | 119 | 777 | 122 |
| | 2017 | 655 | 2 | - | - | 7 | 90 | 662 | 92 |
| | 2018 | 520 | 7 | - | - | 5 | 98 | 525 | 105 |
| | 2019 | 462 | 1 | - | - | 6 | 113 | 468 | 114 |
| Atka Mackerel | 2016 | - | - | - | - | - | 0 | - | 0 |
| | 2018 | - | - | - | - | - | 0 | - | 0 |
| All Groundfish | 2015 | 3,642 | 366 | - | - | 391 | 872 | 4,927 | 1,476 |
| | 2016 | 3,451 | 371 | - | - | 413 | 914 | 4,808 | 1,514 |
| | 2017 | 2,547 | 276 | - | - | 297 | 786 | 3,853 | 1,317 |
| | 2018 | 2,363 | 295 | - | - | 247 | 742 | 2,938 | 1,187 |
| | 2019 | 2,176 | 299 | - | - | 207 | 686 | 2,752 | 1,127 |

Notes: These estimates include only vessels fishing part of federal TACs. A vessel that fished more than one category in a week is apportioned a partial week based on catch weight. A target is determined based on vessel, week, processing mode, NMFS area, and gear. All groundfish include additional target categories. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; CFEC gross earnings (fish tickets) file; NMFS Alaska Region groundfish observer data; NMFS Alaska Region permit data; CFEC vessel registration file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 39: Gulf of Alaska catcher/processor vessel weeks of fishing groundfish by vessel-length class (feet), gear, and target, 2015-2019.

| | Year | Hook & Line | | | Trawl | | | All Gear | | | |
|----------------|------|-------------|----------|-----------|----------|-----------|--------|----------|----------|-----------|--------|
| | | <60ft | 60-124ft | 125-230ft | 60-124ft | 125-230ft | >230ft | <60ft | 60-124ft | 125-230ft | >230ft |
| Pollock | 2015 | - | - | - | - | 1 | - | - | - | 1 | - |
| | 2018 | - | - | - | 0 | 0 | - | - | 0 | 0 | - |
| Sablefish | 2015 | 9 | - | 19 | 0 | - | - | 9 | 0 | 19 | - |
| | 2016 | 9 | - | 17 | - | - | - | 9 | - | 17 | - |
| | 2017 | 9 | - | 20 | - | - | - | 9 | - | 20 | - |
| | 2018 | 10 | - | 21 | 0 | - | - | 10 | 0 | 21 | - |
| | 2019 | 8 | - | 23 | 0 | - | - | 8 | 0 | 23 | - |
| Pacific Cod | 2015 | 4 | 30 | 30 | 0 | - | - | 4 | 30 | 30 | - |
| | 2016 | 0 | - | 45 | 2 | - | - | 0 | 2 | 45 | - |
| | 2017 | - | 4 | 43 | 1 | - | - | - | 5 | 43 | - |
| | 2018 | 7 | - | 8 | - | - | - | 7 | - | 8 | - |
| | 2019 | 1 | - | 8 | - | - | - | 1 | - | 8 | - |
| Flatfish | 2015 | - | - | - | 49 | 16 | - | - | 49 | 16 | - |
| | 2016 | - | - | - | 41 | 8 | - | - | 41 | 8 | - |
| | 2017 | - | - | - | 62 | 16 | - | - | 62 | 16 | - |
| | 2018 | - | - | - | 34 | 4 | - | - | 34 | 4 | - |
| | 2019 | - | - | - | 45 | 10 | - | - | 45 | 10 | - |
| Rockfish | 2015 | - | - | - | 8 | 30 | 2 | - | 8 | 30 | 2 |
| | 2016 | - | - | - | 4 | 33 | 2 | - | 4 | 33 | 2 |
| | 2017 | - | - | 0 | 5 | 32 | 0 | - | 5 | 32 | 0 |
| | 2018 | - | - | - | 7 | 35 | - | - | 7 | 35 | - |
| | 2019 | - | - | - | 5 | 34 | 1 | - | 5 | 34 | 1 |
| Atka Mackerel | 2017 | - | - | - | 1 | - | - | - | 1 | - | - |
| | 2018 | - | - | - | 0 | 0 | - | - | 0 | 0 | - |
| All Groundfish | 2015 | 13 | 30 | 49 | 58 | 47 | 2 | 13 | 88 | 96 | 2 |
| | 2016 | 9 | - | 62 | 48 | 41 | 2 | 9 | 48 | 103 | 2 |
| | 2017 | 9 | 4 | 63 | 69 | 48 | 0 | 9 | 73 | 111 | 0 |
| | 2018 | 17 | - | 29 | 42 | 40 | - | 17 | 42 | 69 | - |
| | 2019 | 9 | - | 31 | 50 | 44 | 1 | 9 | 50 | 75 | 1 |

Notes: These estimates include only vessels fishing part of federal TACs. A vessel that fished more than one category in a week is apportioned a partial week based on catch weight. A target is determined based on vessel, week, processing mode, NMFS area, and gear. All groundfish include additional target categories. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; CFEC gross earnings (fish tickets) file; NMFS Alaska Region groundfish observer data; NMFS Alaska Region permit data; CFEC vessel registration file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 40: Gulf of Alaska catcher vessel crew weeks in the groundfish fisheries by month, 2015-2019.

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Year |
|------|-------|-------|-------|-------|-------|-------|-----|-----|-------|-------|-----|-----|--------|
| 2015 | 1,843 | 2,316 | 3,257 | 2,313 | 2,755 | 1,048 | 524 | 784 | 1,798 | 2,124 | 664 | 503 | 19,928 |
| 2016 | 1,692 | 2,318 | 2,506 | 3,065 | 1,982 | 1,021 | 635 | 903 | 1,736 | 2,298 | 642 | 371 | 19,168 |
| 2017 | 1,500 | 2,191 | 2,262 | 2,556 | 1,486 | 1,185 | 598 | 616 | 1,682 | 1,858 | 648 | 228 | 16,810 |
| 2018 | 352 | 1,144 | 1,378 | 1,323 | 1,721 | 1,270 | 494 | 808 | 2,240 | 1,842 | 926 | 156 | 13,654 |
| 2019 | 428 | 1,055 | 1,492 | 1,394 | 1,642 | 1,209 | 442 | 924 | 1,456 | 1,712 | 729 | 72 | 12,556 |

Notes: Crew weeks are calculated by summing weekly reported crew size over vessels and time period. These estimates include only vessels targeting groundfish counted toward federal TACs. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region At-sea Production Reports. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 41: Gulf of Alaska at-sea processor vessel crew weeks in the groundfish fisheries by month, 2015-2019.

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Year |
|------|-----|-----|-----|-----|-----|-----|-------|-----|-----|-----|-----|-----|-------|
| 2015 | 155 | 280 | 271 | 499 | 348 | 188 | 843 | 689 | 300 | 247 | 193 | * | 4,013 |
| 2016 | * | 107 | 98 | 321 | 215 | 307 | 1,221 | 501 | 254 | 227 | 153 | 190 | 3,594 |
| 2017 | - | 113 | 463 | 262 | 135 | 317 | 1,116 | 615 | 592 | 297 | 156 | * | 4,066 |
| 2018 | - | * | 146 | 194 | 116 | 490 | 877 | 408 | 247 | * | * | * | 2,478 |
| 2019 | - | * | * | * | 134 | 332 | 604 | 556 | 526 | 346 | 312 | * | 2,810 |

Notes: Crew weeks are calculated by summing weekly reported crew size over vessels and time period. These estimates include only vessels targeting groundfish counted toward federal TACs. Catcher processors typically account for 90-95% of the total at-sea crew weeks in all areas. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Region At-sea Production Reports. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table H1: Catch (net landed weight) in the commercial Pacific halibut fisheries off Alaska by region, 2015-2019, (hundreds of metric tons).

| Year | Gulf Of Alaska | Bering Sea And Aleutian Islands | All Alaska |
|------|----------------|------------------------------------|------------|
| 2015 | 68.30 | 13.98 | 82.28 |
| 2016 | 68.71 | 15.08 | 83.79 |
| 2017 | 76.81 | 16.64 | 93.45 |
| 2018 | 67.27 | 15.93 | 83.19 |
| 2019 | 70.62 | 17.32 | 87.94 |

Notes: These estimates include catch from all Alaska commercial fisheries (including CDQ). Net weight is dressed, head-off, slime and ice deducted. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: ADF&G fish tickets; CFEC gross earnings (fish tickets) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table H2: Catch (net landed weight) and percent of regional catch in the commercial Pacific halibut fisheries off Alaska by vessel length (feet) and region, 2015-2019, (hundreds of metric tons).

| | Length | Gulf of Alaska | | Bering Sea and Aleutian Islands | | All Alaska | |
|------|--------|----------------|---------|---------------------------------|---------|------------|---------|
| | | Net Tons | Percent | Net Tons | Percent | Net Tons | Percent |
| 2015 | <20 | 0.10 | 0 | * | * | 0.10 | 0 |
| | 20-29 | 1.54 | 0.02 | 0.97 | 0.07 | 2.51 | 0.03 |
| | 30-39 | 10.51 | 0.15 | 1.96 | 0.14 | 12.46 | 0.15 |
| | 40-49 | 20.12 | 0.30 | 1.89 | 0.14 | 22.01 | 0.27 |
| | 50-59 | 25.83 | 0.38 | 5.94 | 0.43 | 31.77 | 0.39 |
| | >=60 | 9.91 | 0.15 | 3.18 | 0.23 | 13.09 | 0.16 |
| 2016 | <20 | 0.11 | 0 | * | * | 0.11 | 0 |
| | 20-29 | 1.67 | 0.02 | 0.95 | 0.06 | 2.61 | 0.03 |
| | 30-39 | 10.99 | 0.16 | 1.98 | 0.13 | 12.97 | 0.16 |
| | 40-49 | 20.92 | 0.31 | 2.12 | 0.14 | 23.05 | 0.28 |
| | 50-59 | 25.14 | 0.37 | 6.42 | 0.43 | 31.56 | 0.38 |
| | >=60 | 9.53 | 0.14 | 3.49 | 0.23 | 13.02 | 0.16 |
| 2017 | <20 | 0.10 | 0 | * | * | 0.10 | 0 |
| | 20-29 | 1.66 | 0.02 | 0.91 | 0.05 | 2.57 | 0.03 |
| | 30-39 | 12.20 | 0.16 | 2.87 | 0.17 | 15.06 | 0.16 |
| | 40-49 | 23.72 | 0.31 | 2.74 | 0.17 | 26.46 | 0.28 |
| | 50-59 | 28.18 | 0.37 | 6.35 | 0.38 | 34.52 | 0.37 |
| | >=60 | 10.66 | 0.14 | 3.66 | 0.22 | 14.33 | 0.15 |
| 2018 | <20 | 0.09 | 0 | * | * | 0.09 | 0 |
| | 20-29 | 1.32 | 0.02 | 0.90 | 0.06 | 2.22 | 0.03 |
| | 30-39 | 10.67 | 0.16 | 3.19 | 0.20 | 13.86 | 0.17 |
| | 40-49 | 22.00 | 0.33 | 2.70 | 0.17 | 24.69 | 0.30 |
| | 50-59 | 23.95 | 0.36 | 5.55 | 0.35 | 29.50 | 0.36 |
| | >=60 | 9.09 | 0.14 | 3.44 | 0.22 | 12.54 | 0.15 |
| 2019 | <20 | 0.09 | 0 | * | * | 0.09 | 0 |
| | 20-29 | 1.56 | 0.02 | 0.89 | 0.05 | 2.45 | 0.03 |
| | 30-39 | 11.98 | 0.17 | 3.11 | 0.18 | 15.09 | 0.17 |
| | 40-49 | 22.78 | 0.32 | 2.54 | 0.15 | 25.32 | 0.29 |
| | 50-59 | 24.64 | 0.35 | 6.51 | 0.38 | 31.14 | 0.36 |
| | >=60 | 9.42 | 0.13 | 3.93 | 0.23 | 13.35 | 0.15 |

Notes: Excludes vessels in the Annette Island commercial Pacific halibut fishery. These estimates include catch from all Alaska commercial fisheries (including CDQ). Net weight is dressed, head-off, slime and ice deducted. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: ADF&G fish tickets; CFEC gross earnings (fish tickets) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table H3: Non-halibut prohibited species catch on commercial Pacific halibut target trips off Alaska by PSC species and area, 2015-2019.

| | Year | Bairdi Tanner Crab (Count) | Chinook Salmon (Count) | Herring (Tons) | Non- Chinook Salmon (Count) | Opilio Tanner (Snow) Crab (Count) | Other King Crab (Count) | Red King Crab (Count) |
|---------------------------------------|------|-------------------------------------|------------------------------|-------------------|--------------------------------------|---|-------------------------------|-----------------------------|
| Gulf of Alaska | 2015 | - | - | - | - | - | * | - |
| | 2016 | - | - | - | - | - | 19 | 183 |
| | 2017 | 2 | - | - | - | * | * | - |
| | 2018 | 126 | - | - | - | - | 70 | 17 |
| | 2019 | 57 | - | - | - | - | 18 | - |
| Bering Sea and Aleutian Islands | 2015 | - | - | - | - | - | 562 | - |
| | 2016 | 9 | * | * | * | 21 | 237 | 13 |
| | 2017 | 18 | * | * | * | 34 | 233 | 204 |
| | 2018 | 22 | * | * | 32 | 68 | 774 | 28 |
| | 2019 | 17 | * | * | * | 23 | 554 | * |

Notes: These estimates include catch from all Alaska commercial fisheries (including CDQ). For details on prohibited species catch estimation see Cahalan, J., J. Gasper, and J. Mondragon. 2014. Catch sampling and estimation in the federal groundfish fisheries off Alaska, 2015 edition. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-286, 46 p. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: NMFS Alaska Regional Office Prohibited Species Catch database. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table H4A: Ex-vessel value and price in the commercial Pacific halibut fisheries off Alaska by region, 2015-2019, (\$ millions and \$/lb net weight, respectively).

| Year | Gulf of Alaska | | Bering Sea and Aleutian Islands | | All Alaska | |
|------|----------------|-------|---------------------------------|-------|------------|-------|
| | Value | Price | Value | Price | Value | Price |
| 2015 | 94.33 | 6.26 | 17.68 | 5.74 | 112.01 | 6.17 |
| 2016 | 99.36 | 6.56 | 19.58 | 5.89 | 118.95 | 6.44 |
| 2017 | 97.78 | 5.77 | 19.34 | 5.27 | 117.13 | 5.68 |
| 2018 | 72.86 | 4.91 | 14.37 | 4.09 | 87.23 | 4.76 |
| 2019 | 78.48 | 5.04 | 15.12 | 3.96 | 93.61 | 4.83 |

Notes: These estimates include catch from all Alaska commercial fisheries (including CDQ). Price is calculated as landed value divided by net weight. Values are not adjusted for inflation. Net weight is dressed, head-off, slime and ice deducted. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: ADF&G fish tickets; CFEC gross earnings (fish tickets) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table H4B: Ex-vessel value and price in the commercial Pacific halibut fisheries off Alaska by IPHC area, 2015-2019, (\$ millions and \$/lb net weight, respectively).

| | | Variable | 2015 | 2016 | 2017 | 2018 | 2019 |
|------|-------|----------|-------|-------|-------|-------|-------|
| 2C | Value | | 23.61 | 27.28 | 26.47 | 18.61 | 19.08 |
| | Price | | 6.30 | 6.62 | 5.87 | 4.89 | 5.06 |
| 3A | Value | | 50.49 | 49.85 | 48.79 | 39.16 | 44.84 |
| | Price | | 6.30 | 6.59 | 5.81 | 4.99 | 5.16 |
| 3B | Value | | 16.60 | 17.73 | 18.69 | 12.88 | 11.89 |
| | Price | | 6.13 | 6.43 | 5.61 | 4.84 | 4.87 |
| 4A | Value | | 7.86 | 8.33 | 7.77 | 5.71 | 5.89 |
| | Price | | 6.00 | 6.22 | 5.47 | 4.27 | 3.93 |
| 4B | Value | | 6.03 | 6.30 | 5.99 | 4.68 | 4.27 |
| | Price | | 5.69 | 5.76 | 5.14 | 4.07 | 3.95 |
| 4CDE | Value | | 6.86 | 8.79 | 9.41 | 6.19 | 7.24 |
| | Price | | 5.61 | 5.82 | 5.28 | 4.05 | 3.98 |

Notes: Values and prices are for catch from all Alaska commercial fisheries (including CDQ). Price is calculated as landed value divided by net weight. Values are not adjusted for inflation. Net weight is dressed, head-off, slime and ice deducted. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: ADF&G fish tickets; CFEC gross earnings (fish tickets) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table H5: Ex-vessel value and average annual revenue per vessel in the commercial Pacific halibut fisheries off Alaska by region and vessel length (feet), 2015-2019, (\$ millions and \$ thousands, respectively).

| | Length | Gulf of Alaska | | Bering Sea and Aleutian Islands | | All Alaska | |
|------|--------|----------------|-------------------|---------------------------------|-------------------|------------|-------------------|
| | | Value | Avg. Value/Vessel | Value | Avg. Value/Vessel | Value | Avg. Value/Vessel |
| 2015 | <20 | 0.14 | 8.49 | * | * | 0.18 | 6.51 |
| | 20-29 | 2.15 | 21.29 | 1.09 | 41.76 | 3.24 | 25.48 |
| | 30-39 | 14.41 | 57.86 | 2.34 | 83.47 | 16.74 | 62.48 |
| | 40-49 | 27.62 | 108.33 | 2.33 | 166.55 | 29.95 | 115.66 |
| | 50-59 | 35.74 | 196.37 | 7.69 | 248.11 | 43.43 | 231.01 |
| | >=60 | 13.86 | 315.07 | 4.19 | 220.73 | 18.06 | 376.19 |
| 2016 | <20 | 0.15 | 8.00 | * | * | 0.28 | 10.03 |
| | 20-29 | 2.41 | 23.62 | 1.06 | 39.22 | 3.47 | 26.89 |
| | 30-39 | 15.78 | 66.28 | 2.43 | 83.63 | 18.20 | 70.27 |
| | 40-49 | 30.14 | 120.09 | 2.71 | 208.23 | 32.85 | 128.32 |
| | 50-59 | 36.32 | 199.58 | 8.49 | 273.95 | 44.82 | 240.94 |
| | >=60 | 14.06 | 312.39 | 4.77 | 280.73 | 18.83 | 400.63 |
| 2017 | <20 | 0.13 | 9.86 | * | * | 0.27 | 12.07 |
| | 20-29 | 2.13 | 23.12 | 1.03 | 39.53 | 3.15 | 26.74 |
| | 30-39 | 15.46 | 63.11 | 3.29 | 93.87 | 18.75 | 69.43 |
| | 40-49 | 30.11 | 120.93 | 3.21 | 214.18 | 33.32 | 131.72 |
| | 50-59 | 35.83 | 205.93 | 7.30 | 260.71 | 43.13 | 247.88 |
| | >=60 | 13.72 | 319.02 | 4.38 | 257.69 | 18.10 | 393.45 |
| 2018 | <20 | 0.09 | 6.95 | * | * | 0.27 | 13.30 |
| | 20-29 | 1.44 | 18.22 | 0.75 | 31.42 | 2.19 | 21.29 |
| | 30-39 | 11.57 | 48.84 | 2.77 | 74.99 | 14.35 | 55.62 |
| | 40-49 | 23.71 | 97.18 | 2.47 | 154.14 | 26.18 | 105.14 |
| | 50-59 | 25.78 | 152.55 | 5.03 | 186.22 | 30.81 | 179.12 |
| | >=60 | 10.10 | 229.64 | 3.17 | 186.69 | 13.28 | 282.51 |
| 2019 | <20 | 0.09 | 6.33 | * | * | 0.46 | 17.64 |
| | 20-29 | 1.79 | 21.53 | 0.76 | 31.53 | 2.54 | 23.78 |
| | 30-39 | 13.19 | 53.41 | 2.65 | 71.59 | 15.84 | 58.46 |
| | 40-49 | 25.35 | 114.71 | 2.22 | 185.34 | 27.58 | 122.02 |
| | 50-59 | 27.26 | 166.21 | 5.67 | 218.00 | 32.93 | 198.35 |
| | >=60 | 10.62 | 246.97 | 3.46 | 192.30 | 14.08 | 306.11 |

Notes: Values are for catch from all Alaska commercial fisheries (including CDQ). Excludes vessels in the Annette Island commercial Pacific halibut fishery. Length is measured in feet. Values are not adjusted for inflation. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: ADF&G fish tickets; CFEC gross earnings (fish tickets) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table H6: Ex-vessel value port ranking, annual ex-vessel value, price and percent of statewide value in the commercial Pacific halibut fisheries off Alaska, 2015-2019, (\$ millions and \$/lb net weight).

| | Port | 2015 | 2016 | 2017 | 2018 | 2019 |
|---------------------|----------------|-------|-------|-------|-------|-------|
| Ex-vessel Value | Homer | 17.25 | 18.31 | 13.06 | 13.04 | 14.70 |
| | Kodiak | 17.28 | 16.95 | 19.59 | 10.28 | 10.38 |
| | Seward | 12.76 | 13.26 | 13.46 | 12.79 | 11.39 |
| | Dutch Harbor | * | * | * | * | * |
| | Sitka | * | 8.17 | * | 5.83 | 6.51 |
| | Juneau | * | 7.51 | 6.68 | 5.23 | * |
| | St Paul Island | * | * | * | * | 3.14 |
| | Petersburg | 7.01 | 9.93 | 9.97 | 6.56 | 6.48 |
| Price | Yakutat | 4.07 | 4.33 | * | * | * |
| | Homer | 6.11 | 6.43 | 5.82 | 5.24 | 5.27 |
| | Kodiak | 6.23 | 6.60 | 5.59 | 4.60 | 4.60 |
| | Seward | 6.20 | 6.46 | 5.79 | 4.98 | 5.20 |
| | Dutch Harbor | * | * | * | * | * |
| | Sitka | * | 6.53 | * | 4.63 | 4.84 |
| | Juneau | * | 6.76 | 6.01 | 4.87 | * |
| | St Paul Island | * | * | * | * | 3.76 |
| Percent State Value | Petersburg | 6.52 | 6.72 | 5.93 | 4.86 | 5.01 |
| | Yakutat | 6.48 | 6.52 | * | * | * |
| | Homer | 15 % | 15 % | 11 % | 15 % | 16 % |
| | Kodiak | 15 % | 14 % | 17 % | 12 % | 11 % |
| | Seward | 11 % | 11 % | 11 % | 15 % | 12 % |
| | Dutch Harbor | * | * | * | * | * |
| | Sitka | * | 7 % | * | 7 % | 7 % |
| | Juneau | * | 6 % | 6 % | 6 % | * |
| Rank | St Paul Island | * | * | * | * | 3 % |
| | Petersburg | 6 % | 8 % | 9 % | 8 % | 7 % |
| | Yakutat | 4 % | 4 % | * | * | * |
| | Homer | 2 | 1 | 3 | 1 | 1 |
| | Kodiak | 1 | 2 | 1 | 3 | 3 |
| | Seward | 3 | 3 | 2 | 2 | 2 |
| | Dutch Harbor | 4 | 5 | 5 | 6 | 8 |
| | Sitka | 6 | 6 | 6 | 5 | 5 |
| Rank | Juneau | 5 | 7 | 7 | 7 | 4 |
| | St Paul Island | 11 | 11 | 10 | 11 | 10 |
| | Petersburg | 7 | 4 | 4 | 4 | 6 |
| | Yakutat | 9 | 9 | 9 | 8 | 7 |

Notes: Displays only the 10 Alaska ports of landing with the highest average ex-vessel value over the last 5 years. Values and prices are for catch from all Alaska commercial fisheries (including CDQ). Price is calculated as landed value divided by net weight. Net weight is dressed, head-off, slime and ice deducted. Values are not adjusted for inflation. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: ADF&G fish tickets; CFEC gross earnings (fish tickets) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table H7: First wholesale production volume, value and price in the commercial Pacific halibut fisheries off Alaska by product, 2015-2019, (1000s of metric tons, \$ millions and \$/lb net weight, respectively).

| | Year | Quantity | Value | Price |
|----------------|------|----------|--------|-------|
| Head and Gut | 2015 | 5.38 | 92.07 | 7.77 |
| | 2016 | 6.29 | 94.99 | 6.85 |
| | 2017 | 5.64 | 91.86 | 7.39 |
| | 2018 | 5.01 | 75.59 | 6.84 |
| | 2019 | 5.07 | 71.12 | 6.37 |
| Fillet | 2015 | 1.11 | 34.82 | 14.21 |
| | 2016 | 1.23 | 39.30 | 14.50 |
| | 2017 | 1.40 | 42.05 | 13.65 |
| | 2018 | 1.16 | 33.17 | 12.92 |
| | 2019 | 1.38 | 34.76 | 11.44 |
| Other Products | 2015 | 3.05 | 6.86 | 1.02 |
| | 2016 | 0.68 | 4.61 | 3.09 |
| | 2017 | 0.46 | 2.74 | 2.68 |
| | 2018 | 0.33 | 1.73 | 2.39 |
| | 2019 | 0.66 | 2.80 | 1.92 |
| All Products | 2015 | 9.54 | 133.76 | 6.36 |
| | 2016 | 8.19 | 138.91 | 7.69 |
| | 2017 | 7.50 | 136.64 | 8.27 |
| | 2018 | 6.50 | 110.50 | 7.71 |
| | 2019 | 7.11 | 108.69 | 6.94 |

Notes: Landings, values and prices for catch from all Alaska commercial fisheries (including CDQ). Price is calculated as landed value divided by net weight. Net weight is dressed, head-off, slime and ice deducted. Values are not adjusted for inflation. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: ADF&G fish tickets; CFEC gross earnings (fish tickets) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table H8: Number of vessels catching Pacific halibut commercially off Alaska and median vessel length by region and vessel length class, 2015-2019.

| | Year | Gulf of Alaska | | Bering Sea and Aleutian Islands | | All Alaska | |
|-------|------|----------------|---------------|---------------------------------|---------------|------------|---------------|
| | | Vessels | Median Length | Vessels | Median Length | Vessels | Median Length |
| <20 | 2015 | 16 | 18 | 12 | 18 | 27 | 18 |
| | 2016 | 19 | 17 | 10 | 18 | 28 | 18 |
| | 2017 | 13 | 18 | 9 | 18 | 22 | 18 |
| | 2018 | 13 | 17 | 7 | 18 | 20 | 18 |
| | 2019 | 15 | 18 | 11 | 18 | 26 | 18 |
| 20-29 | 2015 | 101 | 25 | 26 | 27 | 127 | 25 |
| | 2016 | 102 | 25 | 27 | 28 | 129 | 25 |
| | 2017 | 92 | 25 | 26 | 28 | 118 | 25 |
| | 2018 | 79 | 26 | 24 | 28 | 103 | 27 |
| | 2019 | 83 | 26 | 24 | 28 | 107 | 26 |
| 30-39 | 2015 | 249 | 34 | 28 | 32 | 268 | 34 |
| | 2016 | 238 | 34 | 29 | 32 | 259 | 33 |
| | 2017 | 245 | 33 | 35 | 32 | 270 | 33 |
| | 2018 | 237 | 34 | 37 | 32 | 258 | 33 |
| | 2019 | 247 | 33 | 37 | 32 | 271 | 33 |
| 40-49 | 2015 | 255 | 43 | 14 | 47 | 259 | 43 |
| | 2016 | 251 | 44 | 13 | 47 | 256 | 44 |
| | 2017 | 249 | 44 | 15 | 47 | 253 | 44 |
| | 2018 | 244 | 44 | 16 | 47 | 249 | 44 |
| | 2019 | 221 | 44 | 12 | 47 | 226 | 44 |
| 50-59 | 2015 | 182 | 55 | 31 | 58 | 188 | 55 |
| | 2016 | 182 | 55 | 31 | 58 | 186 | 55 |
| | 2017 | 174 | 55 | 28 | 58 | 174 | 55 |
| | 2018 | 169 | 55 | 27 | 58 | 172 | 55 |
| | 2019 | 164 | 55 | 26 | 58 | 166 | 55 |
| ≥60 | 2015 | 44 | 70 | 19 | 76 | 48 | 72 |
| | 2016 | 45 | 70 | 17 | 76 | 47 | 72 |
| | 2017 | 43 | 70 | 17 | 76 | 46 | 72 |
| | 2018 | 44 | 71 | 17 | 76 | 47 | 72 |
| | 2019 | 43 | 72 | 18 | 76 | 46 | 73 |

Notes: Excludes vessels in the Annette Island commercial Pacific halibut fishery. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: ADF&G fish tickets; CFEC gross earnings (fish tickets) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table H9: Total vessel days fishing Pacific halibut commercially off Alaska by area, 2015-2019.

| Year | Gulf Of Alaska | Bering Sea And Aleutian Islands | All Alaska |
|------|-------------------|--|------------|
| 2015 | 12,546 | 2,744 | 15,056 |
| 2016 | 12,748 | 2,800 | 15,343 |
| 2017 | 13,390 | 2,797 | 15,793 |
| 2018 | 12,792 | 2,646 | 15,106 |
| 2019 | 13,050 | 3,246 | 15,842 |

Notes: Excludes vessels in the Annette Island commercial Pacific halibut fishery. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: ADF&G fish tickets; CFEC gross earnings (fish tickets) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table H10: Crew days fishing Pacific halibut commercially off Alaska by month and area, 2015-2019.

| | Year | Mar- Apr | May | Jun | Jul | Aug | Sep | Oct | Nov |
|------------------------------------|------|-------------|--------|-------|-------|-------|-------|-------|-------|
| Gulf of Alaska | 2015 | 9,274 | 10,716 | 4,904 | 3,028 | 5,018 | 6,386 | 4,433 | 733 |
| | 2016 | 10,297 | 10,087 | 4,964 | 3,566 | 5,887 | 5,078 | 3,358 | 627 |
| | 2017 | 10,399 | 9,558 | 5,886 | 3,704 | 5,677 | 6,574 | 4,923 | 793 |
| | 2018 | 8,738 | 8,359 | 5,735 | 4,000 | 6,287 | 6,756 | 4,699 | 1,102 |
| | 2019 | 10,139 | 8,256 | 5,083 | 3,862 | 5,459 | 5,865 | 5,294 | 1,639 |
| Bering Sea and Aleutian Islands | 2015 | 416 | 1,533 | 2,111 | 2,206 | 2,474 | 1,536 | 1,185 | 133 |
| | 2016 | 529 | 1,525 | 2,100 | 2,121 | 2,686 | 1,578 | 809 | 100 |
| | 2017 | 346 | 1,384 | 2,091 | 1,891 | 2,857 | 1,540 | 1,104 | 192 |
| | 2018 | 455 | 1,270 | 1,456 | 2,044 | 2,986 | 1,766 | 679 | 105 |
| | 2019 | 864 | 1,651 | 1,937 | 2,376 | 2,577 | 1,986 | 950 | 288 |
| All Alaska | 2015 | 9,618 | 12,117 | 6,894 | 5,139 | 7,252 | 7,787 | 5,459 | 866 |
| | 2016 | 10,729 | 11,373 | 6,845 | 5,642 | 8,417 | 6,584 | 4,098 | 695 |
| | 2017 | 10,672 | 10,775 | 7,851 | 5,455 | 7,996 | 7,824 | 5,718 | 985 |
| | 2018 | 9,121 | 9,402 | 7,027 | 5,931 | 8,845 | 8,307 | 5,351 | 1,157 |
| | 2019 | 10,906 | 9,647 | 6,906 | 5,984 | 7,736 | 7,322 | 5,979 | 1,887 |

Notes: Excludes vessels in the Annette Island commercial Pacific halibut fishery because crew size is not reported for this fishery. Minimal fishing occurs in March and to ensure confidentiality it is combined with April. “*” indicates a confidential value; “-” indicates no applicable data or value.

Source: ADF&G fish tickets; CFEC gross earnings (fish tickets) file. Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

5. ECONOMIC PERFORMANCE INDICES FOR THE NORTH PACIFIC GROUND FISH FISHERIES

5.1. Introduction

Fisheries markets are complex. A multitude of factors influence demand, supply, price, catch composition, product types produced and other market activity. Indices are a common method used by agencies to synthesize market information in a digestible format. Indices establish a baseline that helps characterize trends in the market for values, prices and quantities of fisheries goods. Market indices have many uses. From a management perspective indices can both retrospectively characterize changes in the market that may be related to policy decisions (such as a change in TAC), or allow managers to evaluate current market conditions in the context of future policy change. Indices may also be useful to market participants when making business decisions.

This section of the Economic Status of the Groundfish Fisheries off Alaska attempts to distill the numerous factors that affect the North Pacific groundfish markets into a simple set of indices that can be used to track performance. Indices of value, price and quantity are presented for the Bering Sea and Aleutian Island (BSAI) at-sea, the BSAI shoreside, and the Gulf of Alaska (GOA). Figure 5.1 displays the ex-vessel and first-wholesale values for the BSAI and GOA at-sea and shoreside sectors. For the BSAI at-sea sector, index analysis will focus on the wholesale market; for the BSAI shoreside and GOA sectors, index analysis will consider the wholesale and ex-vessel markets. To help understand and evaluate the indices, we plot the value share stratified by species and product type for wholesale markets, and by species and gear type for the ex-vessel markets. Value share is the proportion of total value from each of the stratified components, such as the proportion of total value that comes from pollock. Additionally, bar graphs provide detail on the division of production among species, product types and gear types. Specifically, for the wholesale market, these graphs show the composition of species within product types and the composition of product type for a given species, and in the ex-vessel market, they show composition of species harvested by a given gear type and the composition of gear types used to harvest a species.

Aggregate indices, by their very nature, cumulate over the many species, products types, and gear types in a sector. The values, prices, and quantities from individual components of these factors (e.g., individual species) may contribute to the movements of the aggregate indices in very different ways. The myriad of market influences make it difficult to disentangle the relative importance of different species or products when monitoring aggregate performance, a problem that can be approached by using a value-share decomposition to examine the influence of these different components on the aggregate index. Decomposition relates the indices for each of the components of a single factor to the aggregate through its value share. For example, consider an aggregate price index for a sector. The aggregate price index is a function of the prices of all the species sold (e.g., pollock, Pacific cod, sablefish). Here, species type is the factor and the component indices of this factor are the price indices for all the species (e.g., pollock price index, Pacific cod price index). The importance of each individual species price index is determined by the proportion of total value in the sector for the species. By decomposing the aggregate index in this way, one can see how each of the species price indices influence the movement in the aggregate price index. Similar value-share decompositions

are also constructed for product types in the wholesale market, and for gear types in the ex-vessel market.

The primary tools we will use to analyze market performance are Figures 5.2-5.11. The index figures in Figures 5.2-5.11 are designed to help the reader visualize changes in the indices and relate the changes to shifts in aggregate value, prices, and quantities. All indices use 2015 as the base year for the index. All calculations and statistics are made using nominal U.S. dollars (i.e., not adjusted for inflation).¹ Aggregate indices are located in the upper-left panel and the value share decomposition of the aggregate index is below in the lower-left panels of the figures. Changes in the indices have been color coded to indicate the relevance in determining aggregate index movements. The relevance of a change in the price index in year t is calculated by $(year-on-year\ growth\ rate) * (share\ weight) = (I_{i,t}/I_{i,t-1} - 1) * \tilde{w}(i,t)$ where $I_{i,t}$ is the level of the index and $\tilde{w}(i,t) = \frac{p_{i,t} * q_{i,t}}{\sum_j p_{j,t} * q_{j,t}}$ is the year t value share and i, j enumerates species, products, or gear types depending on the index. When the value $(year-on-year\ growth\ rate) * (share\ weight)$ is roughly zero, indicating little to no change or influence on the aggregate index, it is colored blue. When this value is less than -0.1, the index is colored red to indicate that it has had a significant negative impact on the aggregate index. When this value is greater than 0.1, the index is colored green, indicating a significant positive impact on the aggregate index. Shades in between these colors indicate intermediate impacts. The indices can take on these “significant colors” if the percentage change is large and/or the value share is large. The value share plot in the upper-right corner of each figure helps to discern the difference. For each sector and market, two decompositions are presented. The wholesale market is decomposed by species and product type, and the ex-vessel market is decomposed by species and gear type. To help relate the different decompositions, bar graphs in the lower-right panel of each figure show the composition of one factor (e.g., product type) for each relevant category of the other factor (e.g., species) as measured by production. The height of the bars shows the annual output in that market. Only the components of a factor with a value share greater than 1% have been plotted, although all prices and quantities were used in the construction of the aggregate index. Ex-vessel indices are constructed using catch that is counted against a federal total allowable catch (TAC). Hereafter, “wholesale value” and “ex-vessel value” refer to the revenue from production at the first wholesale level or from sales of catch on the ex-vessel market, respectively. Walleye pollock will often be referred to simply as “pollock”; similarly, Pacific cod will often be referred to as “cod”. The “other” product type contains all products that are not fillets, H&G, surimi, meal and oil, or roe. In particular, the “other” product type include whole fish and minced fish.

Understanding the indices and their construction facilitates accurate interpretation. To properly interpret the indices, the reader must realize that the indices are merely descriptive and characterize the state of the market relative to other periods, and display the co-movement of different species, product types, or gear types both individually and in aggregate. The indices have no inherent causal interpretation. For example, it would be wrong to assert from these indices that a change in surimi prices “caused” a change in pollock price. Nor could we say the opposite. We can say that they are connected, as surimi is a significant portion of the value from pollock in some regions, but causality is beyond the scope of indices. Carefully designed regression analysis is better suited for addressing such causality questions. The indices are displayed graphically in Section 5.2 followed by tables with the index values.

¹U.S. nominal dollars are used so price indices capture unadjusted changes in prices throughout time, allowing them to be used as deflator indices. For readers comparing these indices to other figures in the SAFE denominated in inflation adjusted terms, this adjustment should be kept in mind.

5.2. Economic Indices of the Groundfish Fisheries off Alaska

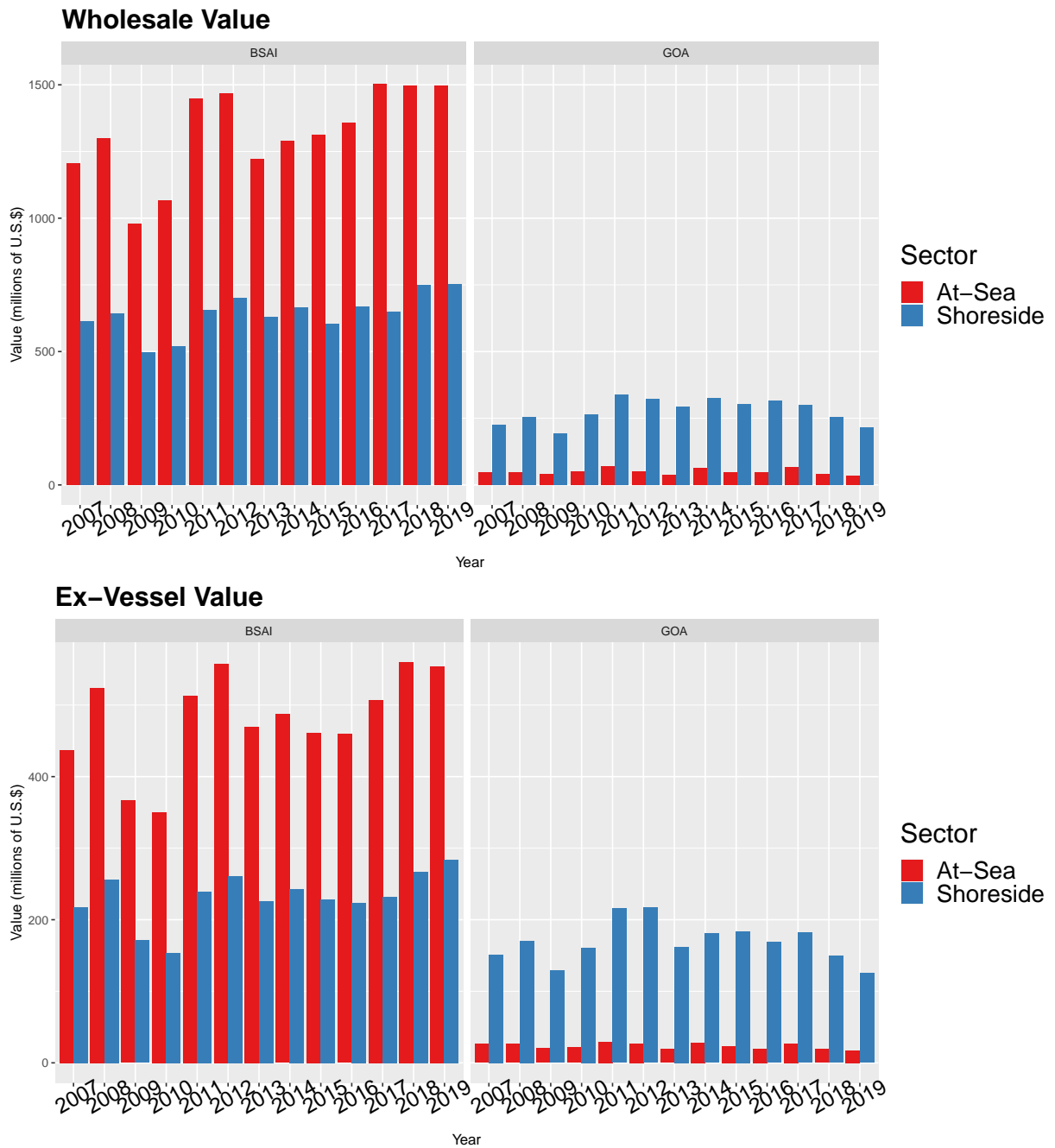


Figure 5.1: Wholesale and ex-vessel value by region and sector 2007-2019.

Source: NMFS Alaska Region's Catch-accounting system (CAS) and Weekly Production Report (WPR) estimates; Alaska Department of Fish and Game (ADF&G) Commercial Operator's Annual Report (COAR), National Marine Fisheries Service. P.O. Box 15700, Seattle, WA 98115-0070.

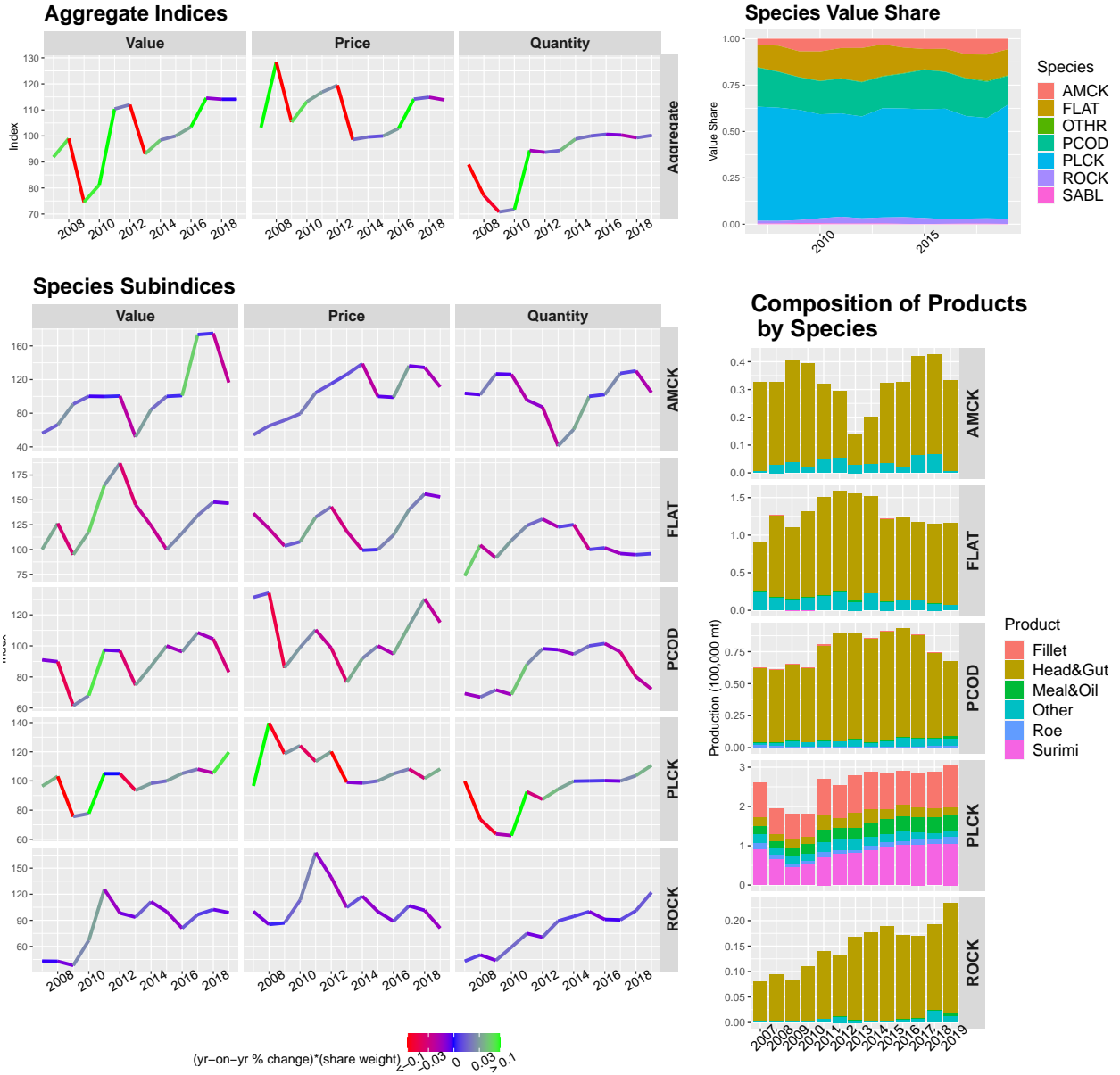


Figure 5.2: BSAI at-sea wholesale market: species decomposition 2007-2019 (Index 2015 = 100).
Notes: Index values for 2014-2019, notes and source information for the indices are on Table 5.1. Index coloring indicates its influence on aggregate index movements, see Section 5.1 for details.

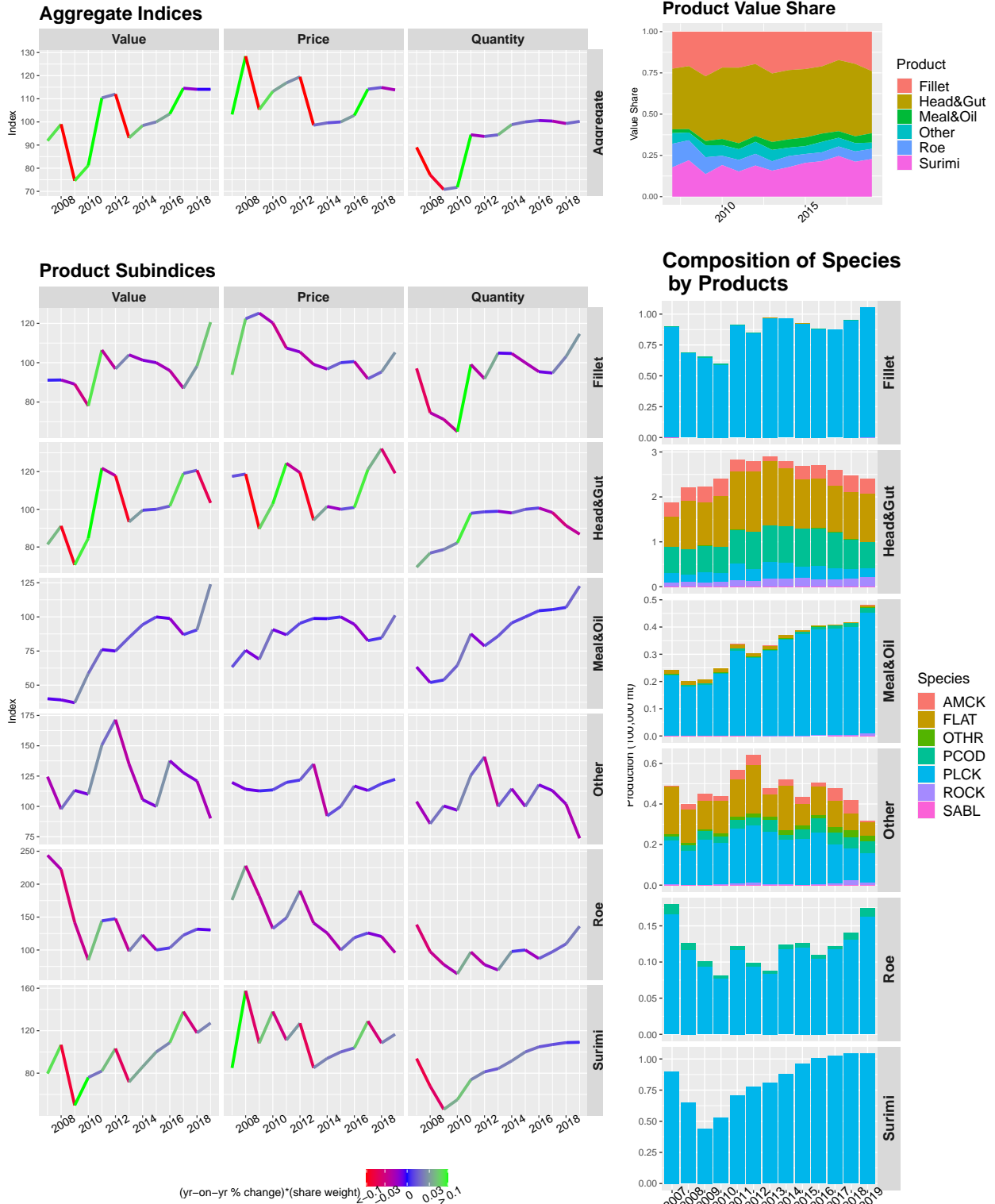


Figure 5.3: BSAI at-sea wholesale market: product decomposition 2007-2019 (Index 2015 = 100).
Notes: Index values for 2014-2019, notes and source information for the indices are on Table 5.2. Index coloring indicates its influence on aggregate index movements, see Section 5.1 for details.

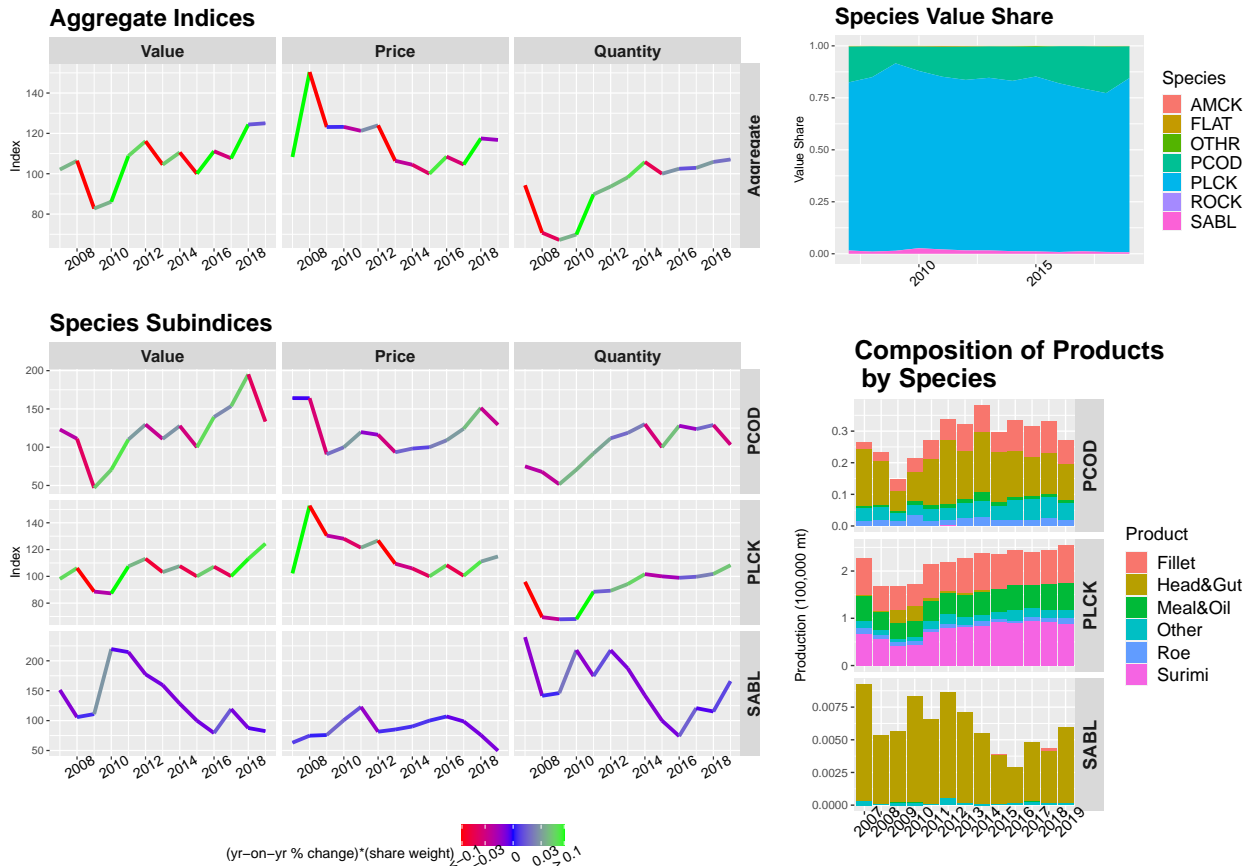


Figure 5.4: BSAI shoreside wholesale market: species decomposition 2007-2019 (Index 2015 = 100).
Notes: Index values for 2014-2019, notes and source information for the indices are on Table 5.3. Index coloring indicates its influence on aggregate index movements, see Section 5.1 for details.

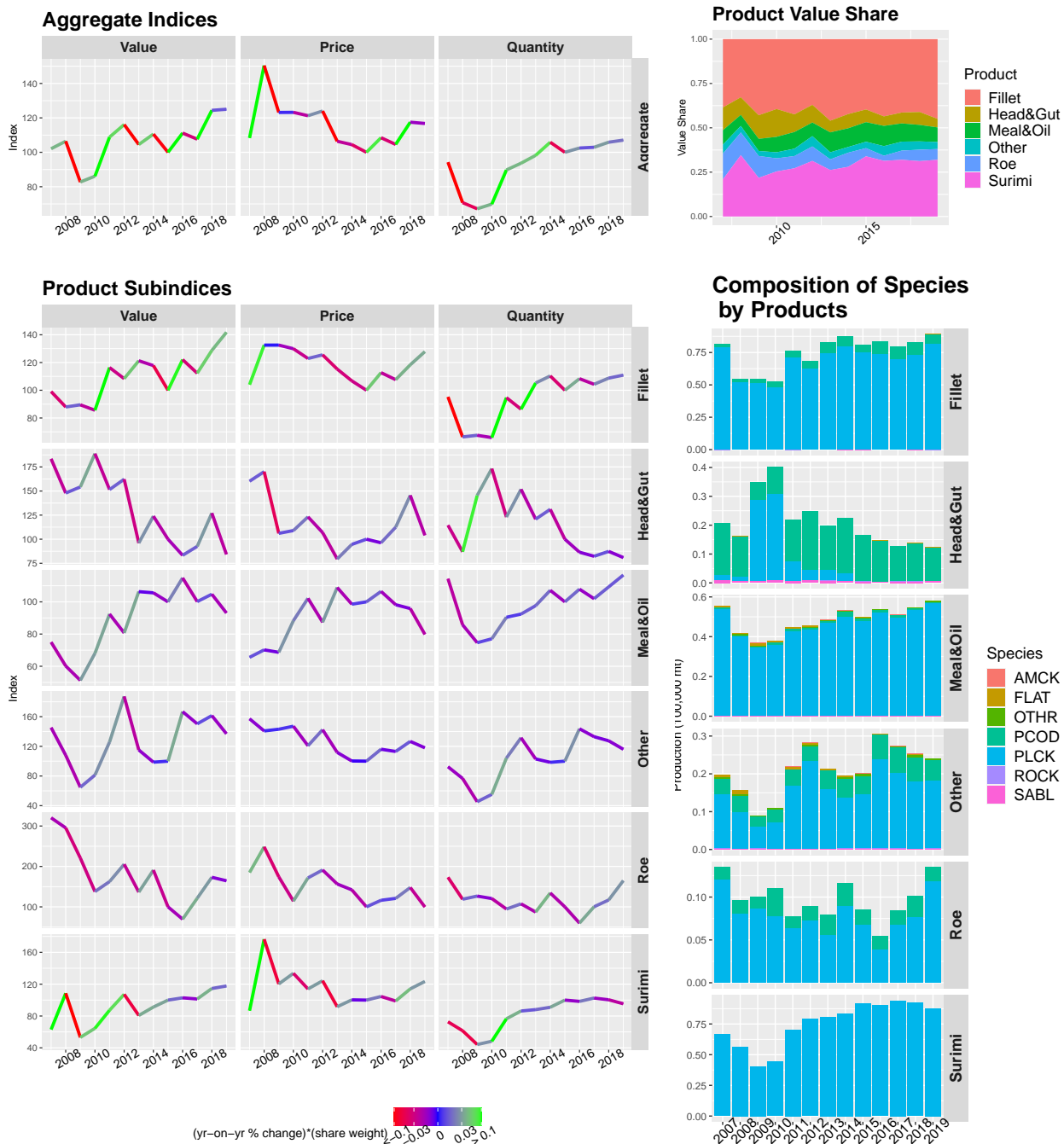


Figure 5.5: BSAI shoreside wholesale market: product decomposition 2007-2019 (Index 2015 = 100). **Notes:** Index values for 2014-2019, notes and source information for the indices are on Table 5.4. Index coloring indicates its influence on aggregate index movements, see Section 5.1 for details.

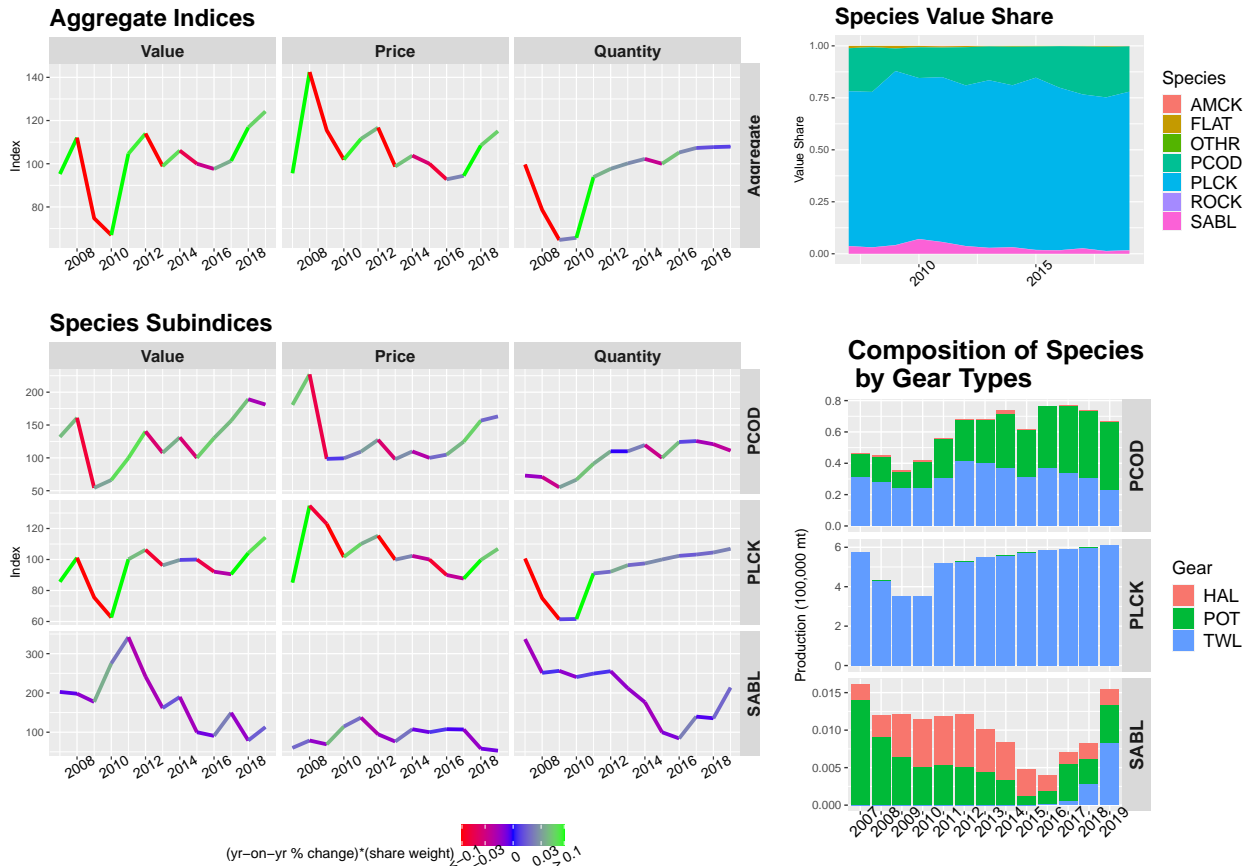


Figure 5.6: BSAI shoreside ex-vessel market: species decomposition 2007-2019 (Index 2015 = 100).
Notes: Index values for 2014-2019, notes and source information for the indices are on Table 5.5. Index coloring indicates its influence on aggregate index movements, see Section 5.1 for details.



Figure 5.7: BSAI shoreside ex-vessel market: gear decomposition 2007-2019 (Index 2015 = 100).
Notes: Index values for 2014-2019, notes and source information for the indices are on Table 5.6. Index coloring indicates its influence on aggregate index movements, see Section 5.1 for details.

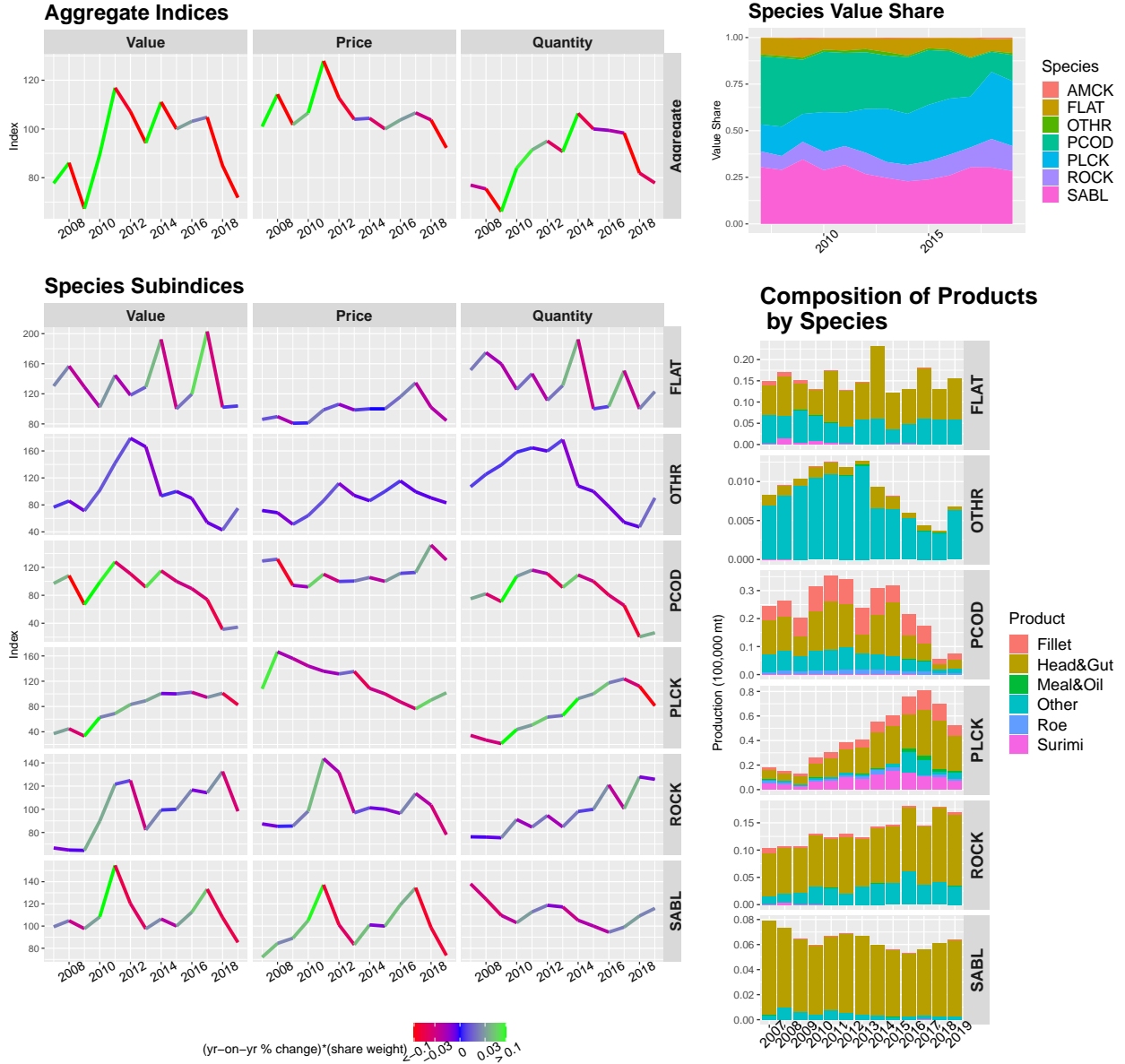


Figure 5.8: GOA wholesale market: species decomposition 2007-2019 (Index 2015 = 100).
Notes: Index values for 2014-2019, notes and source information for the indices are on Table 5.7. Index coloring indicates its influence on aggregate index movements, see Section 5.1 for details.

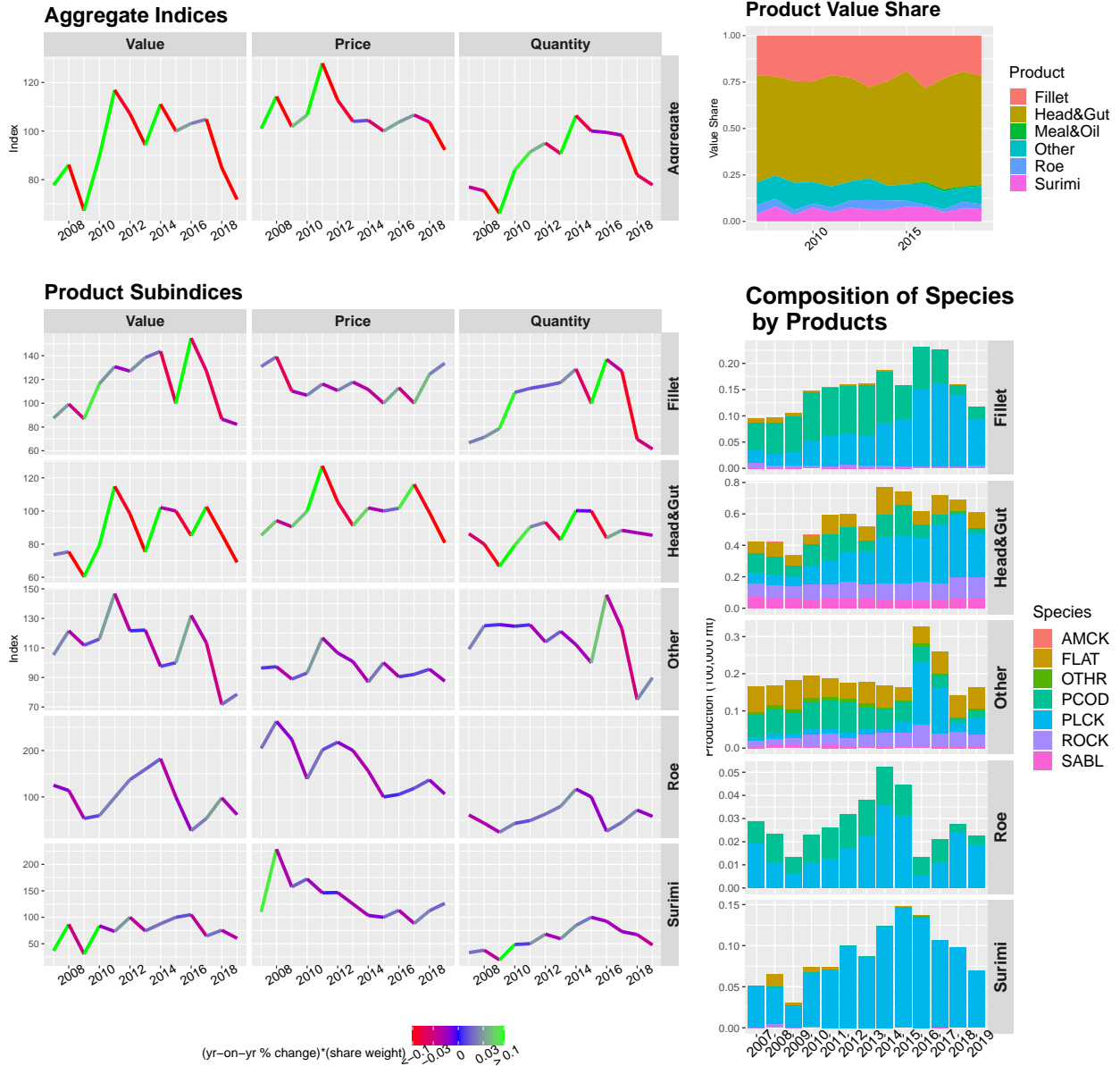


Figure 5.9: GOA wholesale market: product decomposition 2007-2019 (Index 2015 = 100).
Notes: Index values for 2014-2019, notes and source information for the indices are on Table 5.8. Index coloring indicates its influence on aggregate index movements, see Section 5.1 for details.

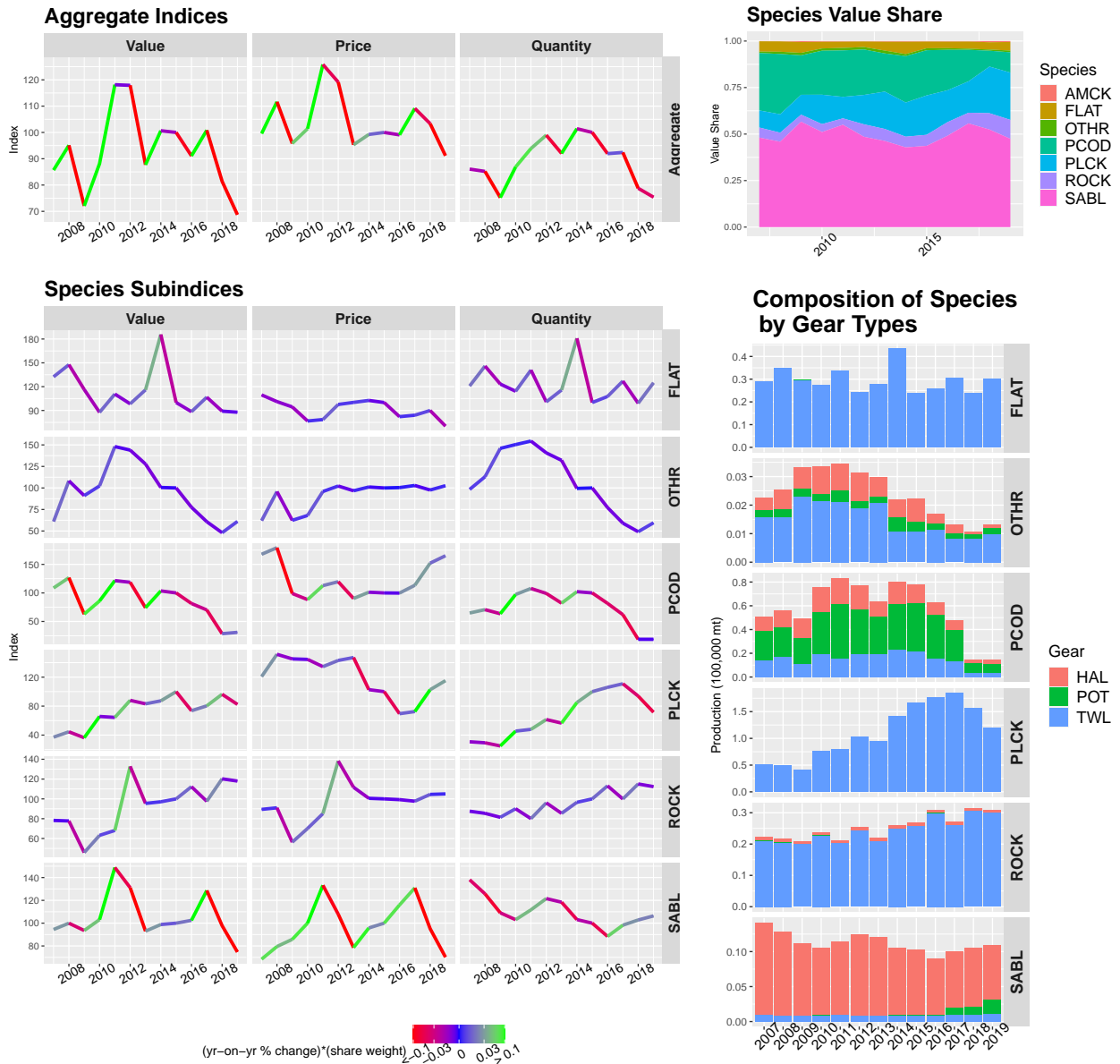


Figure 5.10: GOA ex-vessel market: species decomposition 2007-2019 (Index 2015 = 100).
Notes: Index values for 2014-2019, notes and source information for the indices are on Table 5.9. Index coloring indicates its influence on aggregate index movements, see Section 5.1 for details.

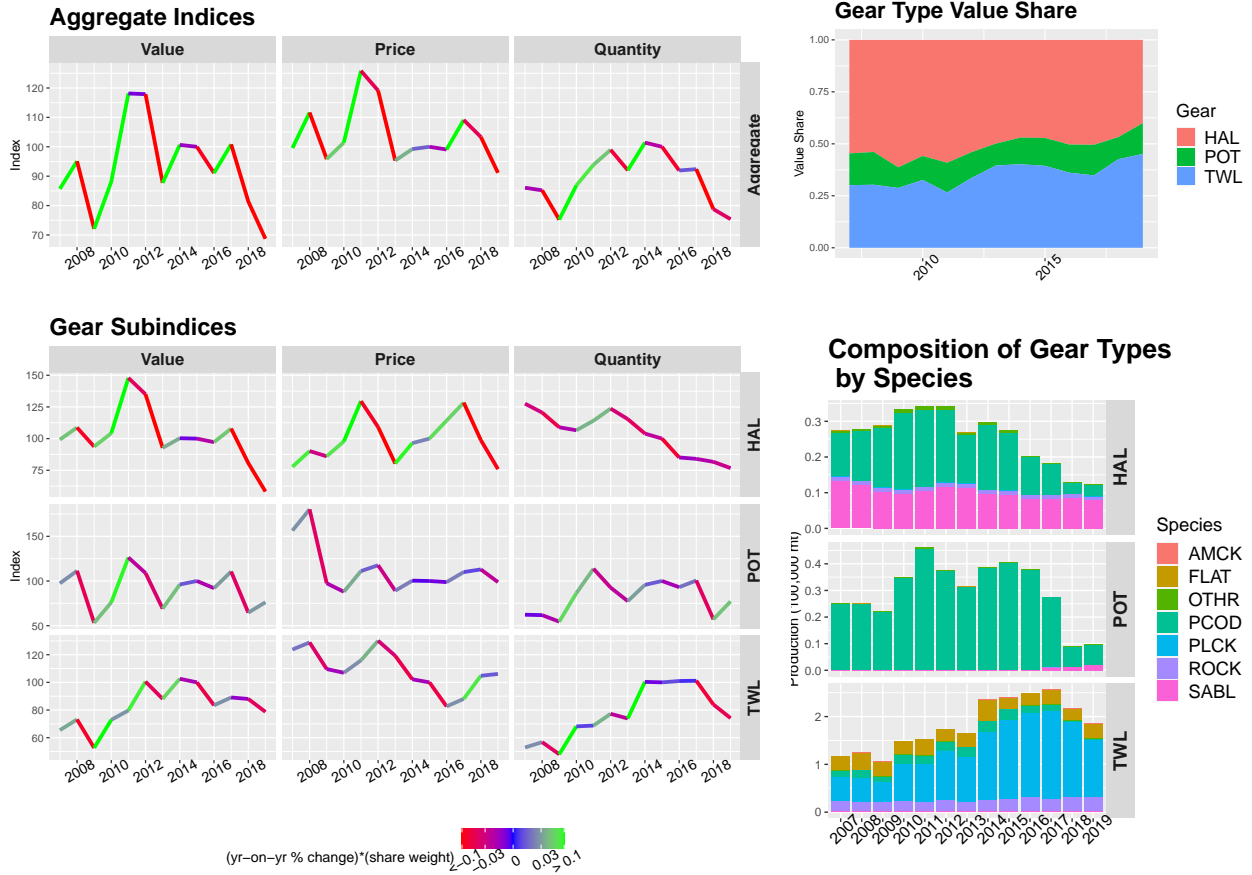


Figure 5.11: GOA ex-vessel market: gear decomposition 2007-2019 (Index 2015 = 100).
Notes: Index values for 2014-2019, notes and source information for the indices are on Table 5.10. Index coloring indicates its influence on aggregate index movements, see Section 5.1 for details.

Table 5.1: Species indices and value share for the BSAI at-sea first-wholesale market 2014-2019.

| Species | Index Type | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-----------|-------------|--------|--------|--------|--------|--------|--------|
| Aggregate | Value | 98.43 | 100.00 | 103.49 | 114.57 | 114.09 | 114.09 |
| Aggregate | Price | 99.59 | 100.00 | 102.86 | 114.15 | 114.87 | 113.84 |
| Aggregate | Quantity | 98.83 | 100.00 | 100.62 | 100.36 | 99.32 | 100.22 |
| AMCK | Value | 84.27 | 100.00 | 100.97 | 173.52 | 174.97 | 116.48 |
| AMCK | Price | 138.81 | 100.00 | 98.87 | 136.24 | 134.33 | 111.29 |
| AMCK | Quantity | 60.71 | 100.00 | 102.12 | 127.36 | 130.26 | 104.66 |
| AMCK | Value Share | 0.05 | 0.06 | 0.05 | 0.08 | 0.09 | 0.06 |
| FLAT | Value | 124.12 | 100.00 | 116.51 | 134.38 | 147.84 | 146.56 |
| FLAT | Price | 99.26 | 100.00 | 114.58 | 140.07 | 156.02 | 153.00 |
| FLAT | Quantity | 125.06 | 100.00 | 101.69 | 95.94 | 94.76 | 95.79 |
| FLAT | Value Share | 0.14 | 0.11 | 0.12 | 0.13 | 0.14 | 0.14 |
| PCOD | Value | 86.99 | 100.00 | 96.25 | 108.53 | 104.41 | 83.09 |
| PCOD | Price | 91.91 | 100.00 | 94.80 | 112.97 | 130.32 | 115.12 |
| PCOD | Quantity | 94.65 | 100.00 | 101.53 | 96.07 | 80.12 | 72.17 |
| PCOD | Value Share | 0.19 | 0.21 | 0.20 | 0.20 | 0.19 | 0.16 |
| PLCK | Value | 98.35 | 100.00 | 105.15 | 108.08 | 105.45 | 119.73 |
| PLCK | Price | 98.54 | 100.00 | 104.93 | 108.15 | 101.73 | 108.22 |
| PLCK | Quantity | 99.80 | 100.00 | 100.21 | 99.94 | 103.65 | 110.63 |
| PLCK | Value Share | 0.59 | 0.59 | 0.60 | 0.55 | 0.54 | 0.62 |
| ROCK | Value | 111.28 | 100.00 | 80.94 | 96.51 | 102.43 | 98.84 |
| ROCK | Price | 117.81 | 100.00 | 88.93 | 106.67 | 101.44 | 80.99 |
| ROCK | Quantity | 94.46 | 100.00 | 91.01 | 90.48 | 100.98 | 122.04 |
| ROCK | Value Share | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |

Notes: Species with a value share less than 1% were not included in this table. All groundfish species were used to calculate aggregate indices and value share. The Fisher index method was used to construct the indices. Further details can be found in the text or by contacting ben.fissel@noaa.gov.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 5.2: Product indices and value share for the BSAI at-sea first-wholesale market 2014-2019.

| Product | Index Type | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-----------|-------------|--------|--------|--------|--------|--------|--------|
| Aggregate | Value | 98.43 | 100.00 | 103.49 | 114.57 | 114.09 | 114.09 |
| Aggregate | Price | 99.59 | 100.00 | 102.86 | 114.15 | 114.87 | 113.84 |
| Aggregate | Quantity | 98.83 | 100.00 | 100.62 | 100.36 | 99.32 | 100.22 |
| Fillet | Value | 101.29 | 100.00 | 95.98 | 87.01 | 98.29 | 120.61 |
| Fillet | Price | 96.76 | 100.00 | 100.57 | 91.82 | 95.31 | 105.22 |
| Fillet | Quantity | 104.68 | 100.00 | 95.43 | 94.77 | 103.13 | 114.62 |
| Fillet | Value Share | 0.23 | 0.23 | 0.21 | 0.17 | 0.20 | 0.24 |
| Head&Gut | Value | 99.52 | 100.00 | 101.71 | 119.03 | 120.71 | 103.41 |
| Head&Gut | Price | 101.51 | 100.00 | 101.01 | 121.12 | 132.17 | 119.14 |
| Head&Gut | Quantity | 98.04 | 100.00 | 100.69 | 98.28 | 91.33 | 86.80 |
| Head&Gut | Value Share | 0.42 | 0.41 | 0.41 | 0.43 | 0.44 | 0.38 |
| Meal&Oil | Value | 94.33 | 100.00 | 98.85 | 87.00 | 90.50 | 123.95 |
| Meal&Oil | Price | 98.72 | 100.00 | 94.57 | 82.60 | 84.61 | 101.15 |
| Meal&Oil | Quantity | 95.56 | 100.00 | 104.52 | 105.33 | 106.96 | 122.55 |
| Meal&Oil | Value Share | 0.05 | 0.05 | 0.05 | 0.04 | 0.04 | 0.06 |
| Other | Value | 105.56 | 100.00 | 137.63 | 127.78 | 120.92 | 90.15 |
| Other | Price | 92.17 | 100.00 | 116.83 | 113.12 | 118.68 | 122.30 |
| Other | Quantity | 114.52 | 100.00 | 117.80 | 112.96 | 101.89 | 73.71 |
| Other | Value Share | 0.05 | 0.05 | 0.06 | 0.05 | 0.05 | 0.04 |
| Roe | Value | 122.88 | 100.00 | 103.20 | 122.50 | 131.65 | 130.50 |
| Roe | Price | 125.71 | 100.00 | 118.69 | 125.89 | 120.50 | 95.97 |
| Roe | Quantity | 97.75 | 100.00 | 86.95 | 97.31 | 109.25 | 135.98 |
| Roe | Value Share | 0.07 | 0.05 | 0.05 | 0.06 | 0.06 | 0.06 |
| Surimi | Value | 86.00 | 100.00 | 108.76 | 137.90 | 117.98 | 127.23 |
| Surimi | Price | 93.93 | 100.00 | 103.81 | 128.95 | 108.45 | 116.61 |
| Surimi | Quantity | 91.56 | 100.00 | 104.77 | 106.94 | 108.78 | 109.11 |
| Surimi | Value Share | 0.18 | 0.20 | 0.22 | 0.25 | 0.21 | 0.23 |

Notes: Products types ‘Minced’, ‘Other’ and those with a value share less than 1% were not included in this table. All product types were used to construct aggregate indices and value share. The Fisher index method was used to construct the indices. Further details can be found in the text or by contacting ben.fissel@noaa.gov.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 5.3: Species indices and value share for the BSAI shoreside first-wholesale market 2014-2019.

| Species | Index Type | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-----------|-------------|--------|--------|--------|--------|--------|--------|
| Aggregate | Value | 110.56 | 100.00 | 111.17 | 107.63 | 124.38 | 125.01 |
| Aggregate | Price | 104.47 | 100.00 | 108.48 | 104.58 | 117.49 | 116.75 |
| Aggregate | Quantity | 105.84 | 100.00 | 102.48 | 102.92 | 105.86 | 107.07 |
| PCOD | Value | 127.87 | 100.00 | 139.47 | 153.64 | 195.17 | 133.58 |
| PCOD | Price | 98.24 | 100.00 | 108.96 | 124.23 | 151.33 | 129.27 |
| PCOD | Quantity | 130.16 | 100.00 | 128.00 | 123.67 | 128.97 | 103.34 |
| PCOD | Value Share | 0.16 | 0.14 | 0.18 | 0.20 | 0.22 | 0.15 |
| PLCK | Value | 107.67 | 100.00 | 107.22 | 100.15 | 113.03 | 124.41 |
| PLCK | Price | 105.92 | 100.00 | 108.37 | 100.44 | 111.01 | 114.86 |
| PLCK | Quantity | 101.65 | 100.00 | 98.94 | 99.71 | 101.82 | 108.31 |
| PLCK | Value Share | 0.82 | 0.84 | 0.81 | 0.78 | 0.76 | 0.84 |
| SABL | Value | 128.21 | 100.00 | 79.25 | 119.21 | 87.60 | 82.43 |
| SABL | Price | 90.22 | 100.00 | 106.94 | 98.66 | 75.98 | 49.68 |
| SABL | Quantity | 142.11 | 100.00 | 74.10 | 120.83 | 115.30 | 165.90 |
| SABL | Value Share | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |

Notes: Species with a value share less than 1% were not included in this table. All groundfish species were used to calculate aggregate indices and value share. The Fisher index method was used to construct the indices. Further details can be found in the text or by contacting ben.fissel@noaa.gov.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 5.4: Product indices and value share for the BSAI shoreside first-wholesale market 2014-2019.

| Product | Index Type | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-----------|-------------|--------|--------|--------|--------|--------|--------|
| Aggregate | Value | 110.56 | 100.00 | 111.17 | 107.63 | 124.38 | 125.01 |
| Aggregate | Price | 104.47 | 100.00 | 108.48 | 104.58 | 117.49 | 116.75 |
| Aggregate | Quantity | 105.84 | 100.00 | 102.48 | 102.92 | 105.86 | 107.07 |
| Fillet | Value | 117.79 | 100.00 | 122.08 | 112.28 | 128.71 | 141.80 |
| Fillet | Price | 106.77 | 100.00 | 112.68 | 107.64 | 118.35 | 127.85 |
| Fillet | Quantity | 110.32 | 100.00 | 108.34 | 104.31 | 108.76 | 110.91 |
| Fillet | Value Share | 0.42 | 0.40 | 0.44 | 0.41 | 0.41 | 0.45 |
| Head&Gut | Value | 123.92 | 100.00 | 83.27 | 92.55 | 127.08 | 84.21 |
| Head&Gut | Price | 94.60 | 100.00 | 96.28 | 112.46 | 145.50 | 104.04 |
| Head&Gut | Quantity | 131.00 | 100.00 | 86.49 | 82.30 | 87.34 | 80.94 |
| Head&Gut | Value Share | 0.08 | 0.07 | 0.05 | 0.06 | 0.07 | 0.05 |
| Meal&Oil | Value | 105.61 | 100.00 | 114.89 | 100.16 | 104.75 | 93.08 |
| Meal&Oil | Price | 98.55 | 100.00 | 106.50 | 98.23 | 95.84 | 79.79 |
| Meal&Oil | Quantity | 107.17 | 100.00 | 107.88 | 101.97 | 109.30 | 116.65 |
| Meal&Oil | Value Share | 0.11 | 0.11 | 0.11 | 0.10 | 0.09 | 0.08 |
| Other | Value | 98.64 | 100.00 | 166.75 | 150.34 | 161.42 | 136.91 |
| Other | Price | 100.22 | 100.00 | 116.08 | 113.06 | 126.65 | 117.98 |
| Other | Quantity | 98.42 | 100.00 | 143.65 | 132.97 | 127.45 | 116.05 |
| Other | Value Share | 0.03 | 0.04 | 0.05 | 0.05 | 0.05 | 0.04 |
| Roe | Value | 190.98 | 100.00 | 69.56 | 121.34 | 173.17 | 164.54 |
| Roe | Price | 142.12 | 100.00 | 116.29 | 120.98 | 147.93 | 99.73 |
| Roe | Quantity | 134.38 | 100.00 | 59.81 | 100.30 | 117.06 | 164.98 |
| Roe | Value Share | 0.08 | 0.05 | 0.03 | 0.05 | 0.06 | 0.06 |
| Surimi | Value | 91.25 | 100.00 | 102.83 | 101.39 | 114.55 | 117.74 |
| Surimi | Price | 100.30 | 100.00 | 104.52 | 98.88 | 114.10 | 123.43 |
| Surimi | Quantity | 90.98 | 100.00 | 98.38 | 102.54 | 100.40 | 95.39 |
| Surimi | Value Share | 0.28 | 0.34 | 0.31 | 0.32 | 0.31 | 0.32 |

Notes: Products types ‘Minced’, ‘Other’ and those with a value share less than 1% were not included in this table. All product types were used to construct aggregate indices and value share. The Fisher index method was used to construct the indices. Further details can be found in the text or by contacting ben.fissel@noaa.gov.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 5.5: Species indices and value share for the BSAI shoreside ex-vessel market 2014-2019.

| Species | Index Type | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-----------|-------------|--------|--------|--------|--------|--------|--------|
| Aggregate | Value | 106.09 | 100.00 | 97.61 | 101.33 | 116.80 | 124.21 |
| Aggregate | Price | 103.77 | 100.00 | 92.77 | 94.44 | 108.44 | 115.08 |
| Aggregate | Quantity | 102.24 | 100.00 | 105.22 | 107.30 | 107.70 | 107.93 |
| PCOD | Value | 131.21 | 100.00 | 130.16 | 156.52 | 189.29 | 181.13 |
| PCOD | Price | 109.79 | 100.00 | 104.84 | 124.65 | 156.69 | 163.13 |
| PCOD | Quantity | 119.51 | 100.00 | 124.15 | 125.57 | 120.80 | 111.03 |
| PCOD | Value Share | 0.18 | 0.15 | 0.20 | 0.23 | 0.24 | 0.22 |
| PLCK | Value | 99.72 | 100.00 | 92.14 | 90.51 | 104.16 | 114.27 |
| PLCK | Price | 102.33 | 100.00 | 90.01 | 87.69 | 99.65 | 106.88 |
| PLCK | Quantity | 97.45 | 100.00 | 102.37 | 103.21 | 104.52 | 106.91 |
| PLCK | Value Share | 0.78 | 0.83 | 0.78 | 0.74 | 0.74 | 0.76 |
| SABL | Value | 189.72 | 100.00 | 90.71 | 149.40 | 78.98 | 112.99 |
| SABL | Price | 107.56 | 100.00 | 107.76 | 106.94 | 58.26 | 52.92 |
| SABL | Quantity | 176.39 | 100.00 | 84.17 | 139.71 | 135.58 | 213.53 |
| SABL | Value Share | 0.03 | 0.02 | 0.02 | 0.03 | 0.01 | 0.02 |

Notes: Species with a value share less than 1% were not included in this table. All groundfish species were used to calculate aggregate indices and value share. The Fisher index method was used to construct the indices. Further details can be found in the text or by contacting ben.fissel@noaa.gov.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 5.6: Gear indices and value share for the BSAI shoreside ex-vessel market 2014-2019.

| Gear | Index Type | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-----------|-------------|--------|--------|--------|--------|--------|--------|
| Aggregate | Value | 106.09 | 100.00 | 97.61 | 101.33 | 116.80 | 124.21 |
| Aggregate | Price | 103.77 | 100.00 | 92.77 | 94.44 | 108.44 | 115.08 |
| Aggregate | Quantity | 102.24 | 100.00 | 105.22 | 107.30 | 107.70 | 107.93 |
| HAL | Value | 174.26 | 100.00 | 59.46 | 44.63 | 54.72 | 60.02 |
| HAL | Price | 107.14 | 100.00 | 107.20 | 107.82 | 69.43 | 68.93 |
| HAL | Quantity | 162.65 | 100.00 | 55.47 | 41.40 | 78.82 | 87.07 |
| HAL | Value Share | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 |
| POT | Value | 134.50 | 100.00 | 138.18 | 192.58 | 213.59 | 238.23 |
| POT | Price | 107.95 | 100.00 | 104.18 | 122.41 | 141.98 | 152.76 |
| POT | Quantity | 124.59 | 100.00 | 132.64 | 157.33 | 150.44 | 155.95 |
| POT | Value Share | 0.10 | 0.08 | 0.12 | 0.16 | 0.15 | 0.16 |
| TWL | Value | 102.37 | 100.00 | 94.56 | 94.00 | 109.05 | 114.93 |
| TWL | Price | 103.26 | 100.00 | 91.40 | 90.98 | 104.75 | 110.95 |
| TWL | Quantity | 99.13 | 100.00 | 103.46 | 103.32 | 104.10 | 103.58 |
| TWL | Value Share | 0.87 | 0.90 | 0.87 | 0.84 | 0.84 | 0.84 |

Notes: The Fisher index method was used to construct the indices. Further details on index construction and gear decomposition can be found in the text or by contacting ben.fissel@noaa.gov.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 5.7: Species indices and value share for the GOA first-wholesale market 2014-2019.

| Species | Index Type | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-----------|-------------|--------|--------|--------|--------|--------|--------|
| Aggregate | Value | 111.04 | 100.00 | 103.12 | 104.81 | 84.94 | 71.83 |
| Aggregate | Price | 104.38 | 100.00 | 103.70 | 106.62 | 103.70 | 92.28 |
| Aggregate | Quantity | 106.38 | 100.00 | 99.45 | 98.30 | 81.91 | 77.84 |
| FLAT | Value | 192.36 | 100.00 | 119.66 | 202.94 | 102.13 | 103.83 |
| FLAT | Price | 100.00 | 100.00 | 115.98 | 134.64 | 102.09 | 84.45 |
| FLAT | Quantity | 192.36 | 100.00 | 103.18 | 150.73 | 100.04 | 122.95 |
| FLAT | Value Share | 0.09 | 0.05 | 0.06 | 0.10 | 0.06 | 0.08 |
| OTHR | Value | 93.19 | 100.00 | 89.69 | 53.99 | 42.74 | 74.96 |
| OTHR | Price | 86.15 | 100.00 | 115.56 | 99.53 | 90.39 | 83.07 |
| OTHR | Quantity | 108.17 | 100.00 | 77.61 | 54.24 | 47.28 | 90.24 |
| OTHR | Value Share | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| PCOD | Value | 115.12 | 100.00 | 89.53 | 73.82 | 31.22 | 34.38 |
| PCOD | Price | 105.51 | 100.00 | 111.43 | 112.77 | 152.03 | 130.61 |
| PCOD | Quantity | 109.11 | 100.00 | 80.35 | 65.46 | 20.53 | 26.32 |
| PCOD | Value Share | 0.30 | 0.29 | 0.25 | 0.21 | 0.11 | 0.14 |
| PLCK | Value | 100.55 | 100.00 | 102.54 | 94.43 | 100.97 | 82.61 |
| PLCK | Price | 108.74 | 100.00 | 87.32 | 76.34 | 90.15 | 101.66 |
| PLCK | Quantity | 92.47 | 100.00 | 117.43 | 123.70 | 112.01 | 81.26 |
| PLCK | Value Share | 0.27 | 0.30 | 0.30 | 0.27 | 0.36 | 0.35 |
| ROCK | Value | 99.39 | 100.00 | 116.71 | 114.24 | 132.51 | 98.33 |
| ROCK | Price | 101.30 | 100.00 | 96.46 | 113.60 | 103.58 | 78.12 |
| ROCK | Quantity | 98.11 | 100.00 | 120.99 | 100.56 | 127.94 | 125.86 |
| ROCK | Value Share | 0.09 | 0.10 | 0.11 | 0.11 | 0.15 | 0.13 |
| SABL | Value | 106.39 | 100.00 | 112.59 | 133.27 | 107.73 | 85.34 |
| SABL | Price | 101.08 | 100.00 | 119.15 | 134.50 | 98.70 | 73.58 |
| SABL | Quantity | 105.26 | 100.00 | 94.49 | 99.08 | 109.16 | 115.97 |
| SABL | Value Share | 0.23 | 0.24 | 0.26 | 0.30 | 0.30 | 0.28 |

Notes: Species with a value share less than 1% were not included in this table. All groundfish species were used to calculate aggregate indices and value share. The Fisher index method was used to construct the indices. Further details can be found in the text or by contacting ben.fissel@noaa.gov.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 5.8: Product indices and value share for the GOA first-wholesale market 2014-2019.

| Product | Index Type | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-----------|-------------|--------|--------|--------|--------|--------|--------|
| Aggregate | Value | 111.04 | 100.00 | 103.12 | 104.81 | 84.94 | 71.83 |
| Aggregate | Price | 104.38 | 100.00 | 103.70 | 106.62 | 103.70 | 92.28 |
| Aggregate | Quantity | 106.38 | 100.00 | 99.45 | 98.30 | 81.91 | 77.84 |
| Fillet | Value | 143.69 | 100.00 | 154.77 | 127.01 | 86.70 | 82.20 |
| Fillet | Price | 111.54 | 100.00 | 113.02 | 100.05 | 124.38 | 133.66 |
| Fillet | Quantity | 128.83 | 100.00 | 136.95 | 126.95 | 69.71 | 61.49 |
| Fillet | Value Share | 0.25 | 0.19 | 0.28 | 0.23 | 0.19 | 0.22 |
| Head&Gut | Value | 102.08 | 100.00 | 85.09 | 102.54 | 86.01 | 69.01 |
| Head&Gut | Price | 101.87 | 100.00 | 101.62 | 116.09 | 99.07 | 80.86 |
| Head&Gut | Quantity | 100.20 | 100.00 | 83.74 | 88.33 | 86.82 | 85.34 |
| Head&Gut | Value Share | 0.56 | 0.61 | 0.50 | 0.60 | 0.62 | 0.59 |
| Other | Value | 97.49 | 100.00 | 132.05 | 113.36 | 71.69 | 78.61 |
| Other | Price | 86.90 | 100.00 | 90.47 | 92.09 | 95.60 | 87.50 |
| Other | Quantity | 112.18 | 100.00 | 145.95 | 123.10 | 75.00 | 89.84 |
| Other | Value Share | 0.08 | 0.09 | 0.11 | 0.10 | 0.07 | 0.10 |
| Roe | Value | 182.23 | 100.00 | 27.29 | 53.71 | 97.89 | 61.81 |
| Roe | Price | 155.85 | 100.00 | 105.30 | 118.52 | 136.69 | 106.40 |
| Roe | Quantity | 116.93 | 100.00 | 25.92 | 45.32 | 71.61 | 58.10 |
| Roe | Value Share | 0.05 | 0.03 | 0.01 | 0.02 | 0.04 | 0.03 |
| Surimi | Value | 87.70 | 100.00 | 104.88 | 64.59 | 75.58 | 60.37 |
| Surimi | Price | 103.49 | 100.00 | 113.28 | 88.41 | 112.38 | 126.20 |
| Surimi | Quantity | 84.74 | 100.00 | 92.58 | 73.07 | 67.26 | 47.84 |
| Surimi | Value Share | 0.06 | 0.08 | 0.08 | 0.05 | 0.07 | 0.07 |

Notes: Products types ‘Minced’ and those with a value share less than 1% were not included in this table. All product types were used to construct aggregate indices and value share. The Fisher index method was used to construct the indices. Further details can be found in the text or by contacting ben.fissel@noaa.gov.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 5.9: Species indices and value share for the GOA ex-vessel market 2014-2019.

| Species | Index Type | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-----------|-------------|--------|--------|--------|--------|--------|--------|
| Aggregate | Value | 100.64 | 100.00 | 91.08 | 100.82 | 81.42 | 68.72 |
| Aggregate | Price | 99.23 | 100.00 | 99.07 | 109.13 | 103.34 | 91.16 |
| Aggregate | Quantity | 101.42 | 100.00 | 91.94 | 92.38 | 78.78 | 75.39 |
| FLAT | Value | 185.71 | 100.00 | 88.46 | 106.72 | 89.14 | 87.80 |
| FLAT | Price | 102.64 | 100.00 | 82.20 | 84.03 | 89.95 | 70.31 |
| FLAT | Quantity | 180.93 | 100.00 | 107.62 | 127.00 | 99.10 | 124.88 |
| FLAT | Value Share | 0.07 | 0.04 | 0.03 | 0.04 | 0.04 | 0.05 |
| OTHR | Value | 100.58 | 100.00 | 77.59 | 60.81 | 48.03 | 61.13 |
| OTHR | Price | 101.12 | 100.00 | 100.44 | 102.87 | 97.61 | 102.63 |
| OTHR | Quantity | 99.47 | 100.00 | 77.25 | 59.11 | 49.20 | 59.56 |
| OTHR | Value Share | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| PCOD | Value | 103.50 | 100.00 | 81.48 | 70.24 | 28.59 | 30.94 |
| PCOD | Price | 101.26 | 100.00 | 99.75 | 113.39 | 152.18 | 165.11 |
| PCOD | Quantity | 102.21 | 100.00 | 81.69 | 61.95 | 18.79 | 18.74 |
| PCOD | Value Share | 0.25 | 0.24 | 0.22 | 0.17 | 0.09 | 0.11 |
| PLCK | Value | 87.29 | 100.00 | 73.62 | 80.39 | 96.35 | 82.41 |
| PLCK | Price | 102.72 | 100.00 | 69.51 | 72.51 | 102.64 | 115.16 |
| PLCK | Quantity | 84.97 | 100.00 | 105.91 | 110.87 | 93.87 | 71.56 |
| PLCK | Value Share | 0.18 | 0.21 | 0.17 | 0.17 | 0.25 | 0.25 |
| ROCK | Value | 97.07 | 100.00 | 112.30 | 97.57 | 120.25 | 118.01 |
| ROCK | Price | 100.56 | 100.00 | 99.24 | 97.67 | 104.51 | 105.02 |
| ROCK | Quantity | 96.53 | 100.00 | 113.16 | 99.89 | 115.05 | 112.36 |
| ROCK | Value Share | 0.06 | 0.06 | 0.07 | 0.06 | 0.09 | 0.10 |
| SABL | Value | 98.80 | 100.00 | 102.47 | 128.68 | 97.79 | 74.67 |
| SABL | Price | 95.79 | 100.00 | 115.93 | 130.98 | 95.15 | 70.20 |
| SABL | Quantity | 103.14 | 100.00 | 88.39 | 98.24 | 102.78 | 106.36 |
| SABL | Value Share | 0.43 | 0.44 | 0.49 | 0.56 | 0.52 | 0.47 |

Notes: Species with a value share less than 1% were not included in this table. All groundfish species were used to calculate aggregate indices and value share. The Fisher index method was used to construct the indices. Further details can be found in the text or by contacting ben.fissel@noaa.gov.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 5.10: Gear indices and value share for the GOA ex-vessel market 2014-2019.

| Gear | Index Type | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-----------|-------------|--------|--------|--------|--------|--------|--------|
| Aggregate | Value | 100.64 | 100.00 | 91.08 | 100.82 | 81.42 | 68.72 |
| Aggregate | Price | 99.23 | 100.00 | 99.07 | 109.13 | 103.34 | 91.16 |
| Aggregate | Quantity | 101.42 | 100.00 | 91.94 | 92.38 | 78.78 | 75.39 |
| HAL | Value | 100.30 | 100.00 | 97.21 | 107.87 | 80.69 | 58.28 |
| HAL | Price | 96.46 | 100.00 | 114.23 | 128.39 | 98.81 | 75.94 |
| HAL | Quantity | 103.99 | 100.00 | 85.10 | 84.02 | 81.66 | 76.75 |
| HAL | Value Share | 0.47 | 0.47 | 0.50 | 0.50 | 0.47 | 0.40 |
| POT | Value | 96.09 | 100.00 | 91.97 | 110.56 | 64.59 | 76.16 |
| POT | Price | 100.40 | 100.00 | 98.76 | 109.99 | 112.97 | 98.78 |
| POT | Quantity | 95.71 | 100.00 | 93.12 | 100.52 | 57.17 | 77.10 |
| POT | Value Share | 0.13 | 0.13 | 0.14 | 0.15 | 0.11 | 0.15 |
| TWL | Value | 102.60 | 100.00 | 83.44 | 89.08 | 88.01 | 78.69 |
| TWL | Price | 102.23 | 100.00 | 82.63 | 88.07 | 104.77 | 106.10 |
| TWL | Quantity | 100.36 | 100.00 | 100.99 | 101.15 | 84.00 | 74.17 |
| TWL | Value Share | 0.40 | 0.39 | 0.36 | 0.35 | 0.43 | 0.45 |

Notes: The Fisher index method was used to construct the indices. Further details on index construction and gear decomposition can be found in the text or by contacting ben.fissel@noaa.gov.

Source: NMFS Alaska Region Blend and Catch-accounting System estimates; NMFS Alaska Region At-sea and Shoreside Production Reports; and ADF&G Commercial Operators Annual Reports (COAR). Data compiled and provided by the Alaska Fisheries Information Network (AKFIN). National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

6. GROUNDFISH AND HALIBUT IN-SEASON EX-VESSEL REVENUE ESTIMATES FOR 2020

6.1. Overview

This section represents an ongoing effort by AFSC to provide the NPFMC, industry, and the public with economic information that is up to date through September 2020 for the annual groundfish harvest specifications process. Other sections of the Groundfish Economic SAFE (hereafter GFEconSAFE) are currently reporting final 2019 prices and revenues. The data presented in this section are estimates, “nowcasts”, of current 2020 year-to-date monthly ex-vessel revenues and landings for Alaska groundfish and halibut fisheries (methods are summarized below). These ex-vessel revenue estimates are the best estimates of 2020 North Pacific fisheries values currently available, but are likely to be different than the values that will be presented in the 2021 GFEconSAFE. Therefore, in the future, this section will be expanded to evaluate how these estimates correlate with finalized data to improve our ability to provide economic information into the annual groundfish harvest specifications process.

Harvest volumes in 2020 are down in Alaska approximately 13% compared with 2019 ($\approx 270,000$ MT) and 15% below ($\approx 320,000$ MT) the prior 5 year average baseline period (2015-2019; Figure 6.1) January through September, and prices are generally expected to be lower in 2020 than prior years. These trends are broadly consistent with the volume of U.S. exports of Alaska groundfish and halibut through June 2020. Estimated year-to-date 2020 revenues have dropped by 11% compared to 2019 (-\$90 million) and 27% (-\$279 million) from 2015-2019 average values between January and September.

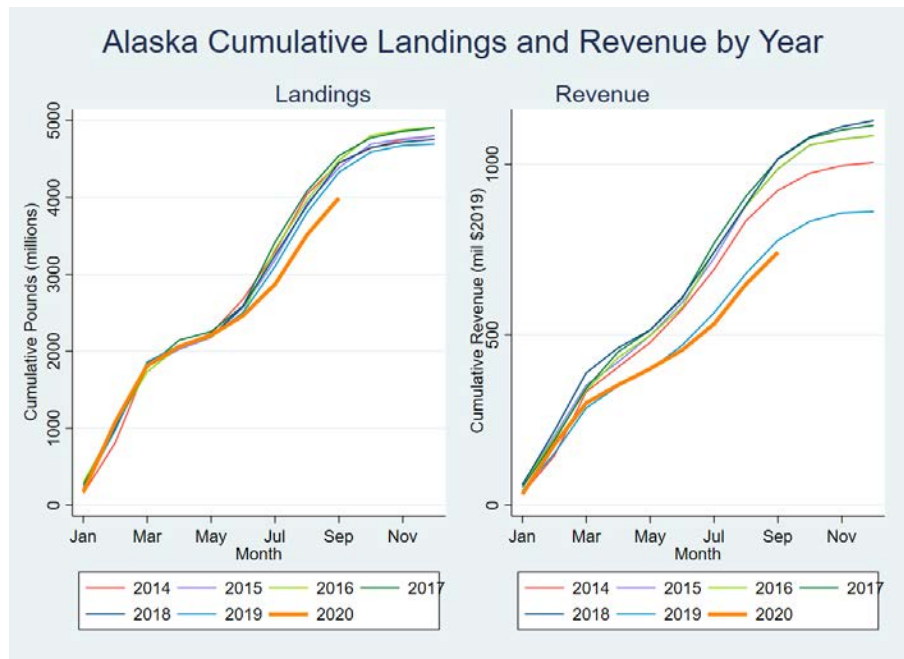


Figure 6.1: Alaska Groundfish and Halibut Cumulative Landings and Revenue by Year, 2014-2020.

On a percentage basis, BSAI harvest volumes fell by approximately 11% in 2020 compared with 2019 and 2015-2019 ($\approx 200,000$ MT). This change is larger in absolute terms, but smaller in percentage terms than the 27% and 44% decline in landings in the GOA (which corresponds to $\approx 56,000$ MT decline from 2019 and $\approx 120,000$ MT decline from 2015-2019 average) as shown in Figures 6.2 and 6.3.

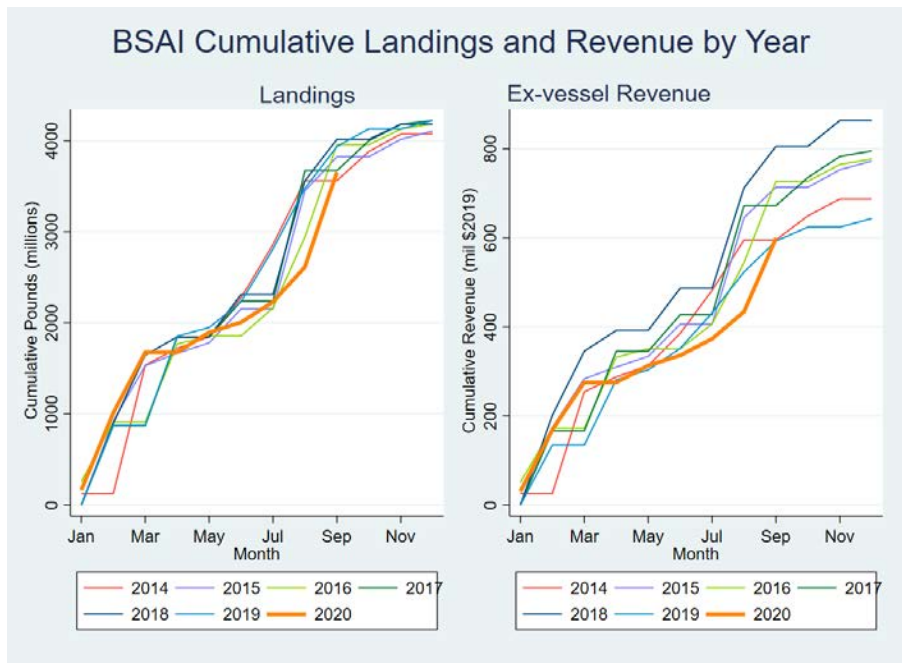


Figure 6.2: BSAI Groundfish and Halibut Cumulative Landings and Ex-vessel Revenue by Year

The GOA also experienced the larger percentage decline in estimated revenues over the baseline periods at approximately 32% (-\$66 million) and 47% (-\$128 million) comparing 2020 with 2019 and the 2015-2019 average. 2020 BSAI revenues are expected to only be down 4% (-\$25 million) from 2019 levels but over 20% below (-\$150 million) the 2015-2019 average.

Alaska remains the region of the U.S. with the largest seafood export values over the January to June period (about \$1 billion), but experienced a 7% decline in value in 2020 relative to 2019. There was also a large (48%) decline in seafood imports to Alaska, but those only represent a very small amount (approximately \$5 million). China is the US's top export country for Jan-June seafood exports, and is a major importer of Alaska seafood. Exports to China (including cod, crab, pollock) decreased from the \$515m baseline average to \$386m in 2020, a 25% decline (NMFS Foreign Trade Data¹). However, the U.S. dollar weakened from January through October 2020 against the Euro (-5.7%)², Yen (-3.6%)³, and Yuan (-2.8%)⁴, which should have helped U.S. and Alaska seafood export competitiveness. However, while the January-October US\$/Yuan exchange rate weakened overall, the US\$ appreciated in value compare with the Yuan from February through August which may have decreased US export competitiveness to China over much of 2020.

¹<https://www.st.nmfs.noaa.gov/commercial-fisheries/foreign-trade/>

²<https://www.x-rates.com/average/?from=USD&to=EUR&amount=1&year=2020>, assessed 10/29/20.

³<https://www.x-rates.com/average/?from=USD&to=JPY&amount=1&year=2020>, assessed 10/29/20.

⁴<https://www.x-rates.com/average/?from=USD&to=CNY&amount=1&year=2020>, assessed 10/29/20.

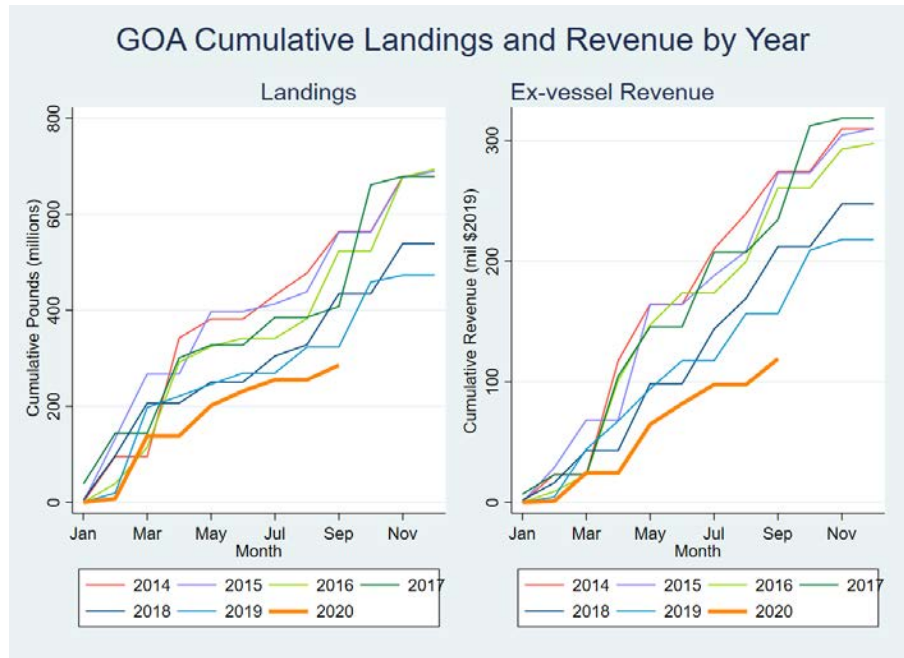


Figure 6.3: GOA Groundfish and Halibut Cumulative Landings and Ex-vessel Revenue by Year

6.2. COVID-19 Impacts

Alaska Governor Dunleavy declared a state of emergency on March 11 and the first confirmed case occurred on March 12. Restaurants, bars, breweries, and food trucks all closed beginning on March 18, which may have limited some amount of seafood sales in some communities, however, the large scale and global nature of Alaska fisheries means that restaurant closures throughout the lower 48 and globally are more likely to impact Alaska seafood sales. The Governor announced on March 23rd that “All people arriving in Alaska, whether resident, worker or visitor, are required to self-quarantine for 14 days and monitor for illness. Arriving residents and workers in self-quarantine, should work from home, unless you support critical infrastructure (see Attachment A).” Fishing and processing businesses are included in Attachment A as “essential businesses,” which allowed many fishing operations to continue in 2020, albeit at a substantial cost to the harvesting and processing industries in Alaska to maintain a safe working environment for their employees and minimize spread to local community residents. More information on the actions of the State of Alaska in response to this crisis can be found on the Office of Governor Mike Dunleavy’s webpage on COVID-19 Health Mandates.

Industry has reported that they have spent over \$50 million (McDowell September 2020)⁵ to reduce the risk of COVID-19 transmission among harvesters, processors, and the local communities while still providing important seafood for the U.S. and international markets as well as providing food security for many Alaskans. The seafood industry has been fairly successful in Alaska limiting virus spread, but they had to deal with a substantial reduction in transportation options in many Western Alaska and Aleutian Islands communities and limited ability to switch crews throughout the fishing seasons to date. The NMFS Alaska Regional Office has been instrumental in devising solutions with industry to allow the continuation of fishing operations and limit the need for fisheries closures

⁵<https://www.alaskaseafood.org/covid-19-impact-reports/>

which would otherwise lead to vessel downtime and higher crew turnover increasing the risk of COVID-19 transmission.

6.3. Methods

The method of “nowcasting” year-to-date monthly 2020 ex-vessel prices is analogous to the methods described in Section 7 of the GFEconSAFE. Ex-vessel prices information for 2020 is available through e-landings reports (fishtickets) and serve as the basis for estimating current year monthly ex-vessel prices. These prices, which are preliminary and unadjusted for year-end adjustments (e.g., bonuses), are reconciled with final ex-vessel prices from the Catch Accounting System.⁶ Unadjusted monthly ex-vessel fish ticket prices are used to estimate final monthly ex-vessel prices in 2020 through linear regression accounting for species, area, gear, and harvest sector. These are highly significant with an R^2 of 0.95 or higher.

Ex-vessel price estimates are presented for six groups of groundfish and halibut: flatfish, halibut, Pacific cod, pollock, rockfish, sablefish, and other. These groups are stratified by BSAI and GOA, and for BSAI pollock and Pacific cod, shoreside and at-sea harvest sectors. Estimated prices are then multiplied by the groundfish and halibut landings from the Catch Accounting System for January 1, 2014 through September 30, 2020 to obtain revenue estimates. These 2020 landings data and revenue estimates are based on the best currently available data, but are still considered preliminary. Caution should be taken in interpreting or extrapolating from these estimates as they are preliminary and may change. The baseline period of comparison with 2020 values will be relative to 2019 as well as the previous five year average from January-September of 2015-2019. All revenues were adjusted for inflation using the GDP deflator using 2019 as the base year.⁷

6.4. BSAI Groundfish and Halibut Landings and Revenues through September 2020

Figures 6.1-6.3 display the cumulative landings and ex-vessel revenue of groundfish and halibut fisheries by month for Alaska, BSAI, and GOA, respectively. Figures 6.4 and 6.5 present the cumulative revenues by month and year for the BSAI in 2020 (the thick orange line), compared with each of the years 2014-2019.⁸ The following section provides a brief summary cumulative harvest and revenue trends of BSAI groundfish and halibut from January through September 2020.

Estimated BSAI revenue from January through September 2020 are only 4% below 2019 levels (a decline of \$25 million from \$624 million to \$599 million) but 20% below the 2015-2019 baseline period (a decline of \$150 million from \$750 million; Figures 6.4 and 6.5). This decline is a result of the combination of lower volumes and lower prices across many species. The largest components of the decrease in value over the 2015-2019 period include estimated \$37 million decline in pollock at-sea revenues, \$28 million decline in pollock shoreside revenues, \$41 million reduction in Pacific cod at-sea revenues, \$15 million in shoreside Pacific cod, \$11 million decrease in flatfish revenues, \$8 million reduction in shoreside Pacific cod revenues, and \$7.5 million reduction in halibut revenues.

⁶Only landings volume coded as fit for human consumption are considered as other landings volume are largely unpriced in e-landings. Because of this, landings initially destined for fishmeal are not included. This constituted are relatively small portion of the total landed volume.

⁷BEA Table 1.1.9 accessed on 9/28/20 from: https://apps.bea.gov/iTable/iTable.cfm?reqid=19&step=3&isuri=1&nipa_table.list=13

⁸Note that Atka mackerel is included in the “other” grouping.

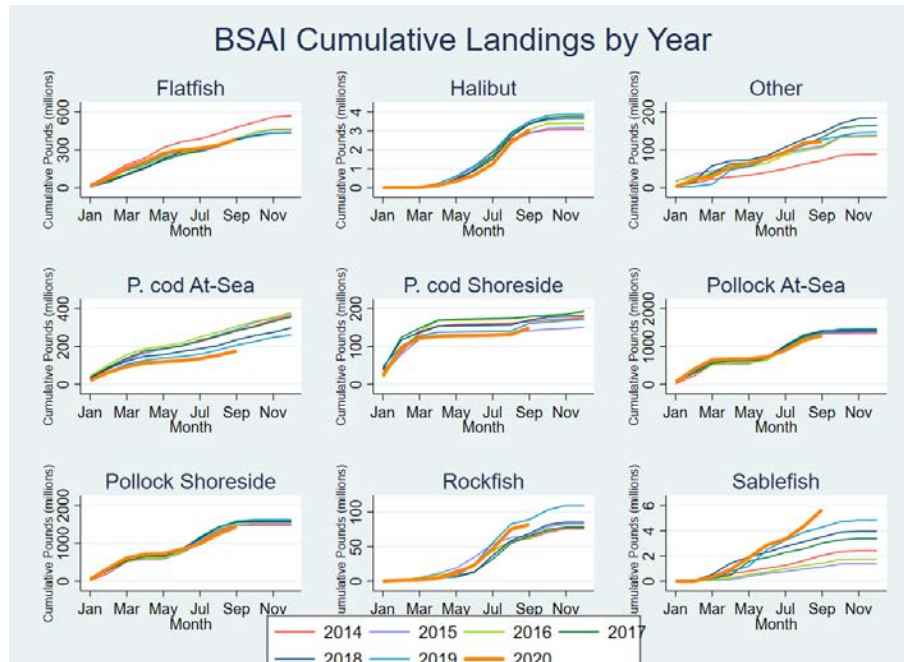


Figure 6.4: BSAI Cumulative Landings by Species and Year

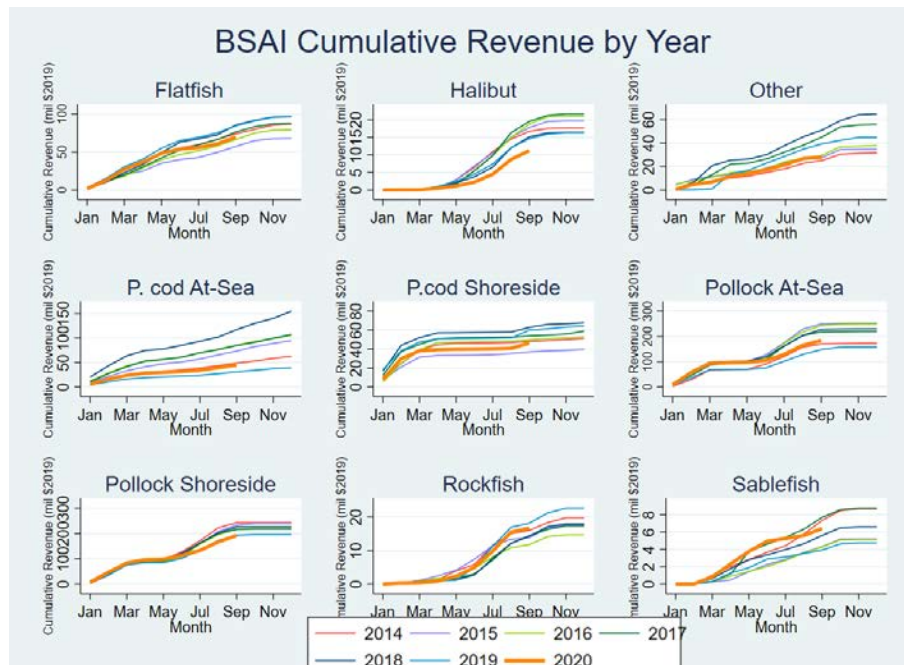


Figure 6.5: BSAI Cumulative Ex-vessel Revenue by Species and Year

Compared with 2019, estimated revenue declines in 2020 include \$21 million in flatfish revenues, \$5 million in halibut revenues, and \$4.5 million in rockfish revenues.

BSAI Flatfish

January to September BSAI flatfish catch in 2020 is down 6% from the 2019 level and 9% lower than the 2015-2019 average by volume, but revenues are down 23% compared with 2019 and 14% lower than the average over 2015-2019 (Figures 6.4 and 6.5).

BSAI Halibut

January to September 2020 has seen a reduction in BSAI halibut landings of approximately 20% from the 2019 level and 13% from the 2015-2019 average. Reduced landings combined with lower prices has resulted in a decline in revenues of 30% in January to September 2020, relative to same period in 2019, and a 40% decline relative to the average January to September period from 2015-2019 (Figures 6.4 and 6.4).

BSAI Pacific cod

Ex-vessel prices in 2020 have decreased slightly from 2019, but remain above 2014-2018 levels. Consistent with TAC declines in Pacific cod in the BSAI and GOA, BSAI shoreside catch of Pacific cod have declined by approximately 9% from January to September of 2020 relative to the same period in 2019, while shoreside catches are down 12% from the average January to September period from 2015-2019. A slight decrease in ex-vessel prices in 2020 has resulted in a reduction in shoreside BSAI Pacific cod revenue from the January to September period of approximately 24%, compared with 2019, and 14% for the January to September period in 2020, compared with the average over the same months from 2015-2019 (Figures 6.4 and 6.5).

For the at-sea sector fishing Pacific cod in the BSAI, fishing conditions were mixed this past summer. Prices in 2019 and 2020 are down relative to 2018 but are within 2014-2017 levels. Processors report that prices have softened since this past winter as we approach the fall. They are also reporting that there is a lot of inventory and people are holding, hoping that prices will rebound. There is some indication of a lot of Russian cod on the market that is lowering prices in Japan and Europe. Consistent with TAC declines in Pacific cod in the BSAI and GOA, at-sea catch of BSAI P. cod have declined by approximately 22% from January to September 2020 relative to the same period in 2019, while at-sea catches are down 39% from the average January to September from 2015-2019. Estimated ex-vessel revenue for at-sea Pacific cod are down approximately 48% for the January to September period of 2020 relative to the average from the same period in 2015-2019, but a surprising 32% increase relative to revenue in 2019 (Figures 6.4 and 6.5).

BSAI Pollock

For the shoreside sector, fishing was not very good (especially in the south where the shoreside sector predominantly harvests) this past summer and therefore some vessels waited to fish later in the season and 2020 shoreside pollock harvests through September are down 11% compared with 2019 and 12% compared with the 2015-2019 average (Figure 6.4). Shoreside pollock prices are relatively stable in both GOA and BSAI relative to 2019 and within the historical range. 2020 BSAI pollock shoreside revenues are estimated to be 2% lower than 2019 through September and 13% below the average over 2015-2019.

For the at-sea sector, prices are down slightly now from the expectations for B Season. Pollock surimi exports to Japan are down significantly through August. However, surimi exports to the EU remain strong. Pollock fillet exports in March and April (the peak following A season) were below typical levels. 2020 BSAI at-sea pollock harvests are below recent periods (9% less than the 2015-2019 average and 11% lower than 2019), and the revenues through September are estimated to

be lower than the 2015-2019 average by approximately 17% while the at-sea pollock revenues are up nearly 17% in 2020 compared with the same period in 2019, which was the lowest revenue year over this period for this sector (Figure 6.5).

BSAI Rockfish

Rockfish ex-vessel prices are currently within the 2014-2019 range. BSAI Rockfish harvests through September 2020 are down 20% from 2019 levels, but only 0.5% lower than the average January to September period of 2015-2019. Similarly, ex-vessel revenues through September of 2020 are estimated to be down 21% from the same period in 2019 and by 2% over the 2015-2019 period (Figures 6.4 and 6.5).

BSAI Sablefish

There was a large increase in BSAI sablefish harvested over the summer of 2020 as shown in Figure 6.4. BSAI Sablefish landings through September 2020 were up 20% from 2019 levels and 89% above the 2015-2019 average (Figure 6.4), while revenue is only up by 7%, and 2020 revenue is 38% above the lowest revenue over this period, which occurred in 2019 (Figure 6.5).

6.5. GOA Groundfish and Halibut Landings and Revenues through September 2020

Figures 6.6 and 6.7 present the cumulative revenues by month and year for GOA groundfish and halibut in 2020 (the thick orange line), compared with each of the years 2014-2019.⁹ The following section provides a brief summary of cumulative harvest and revenue trends for GOA groundfish and halibut from January through September.

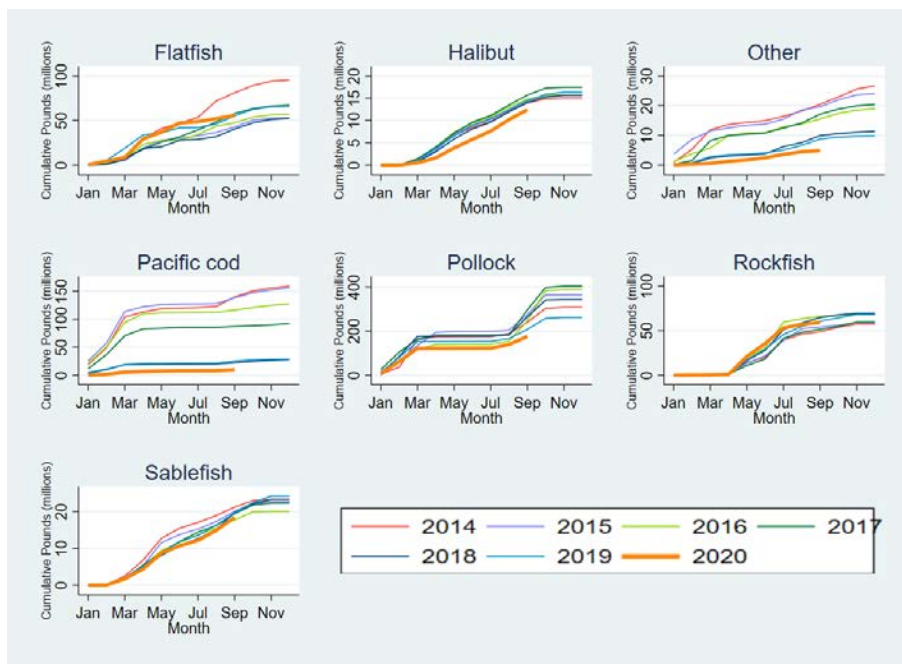


Figure 6.6: GOA Cumulative Landings by Species and Year

⁹Note that Atka mackerel is included in “other” grouping.

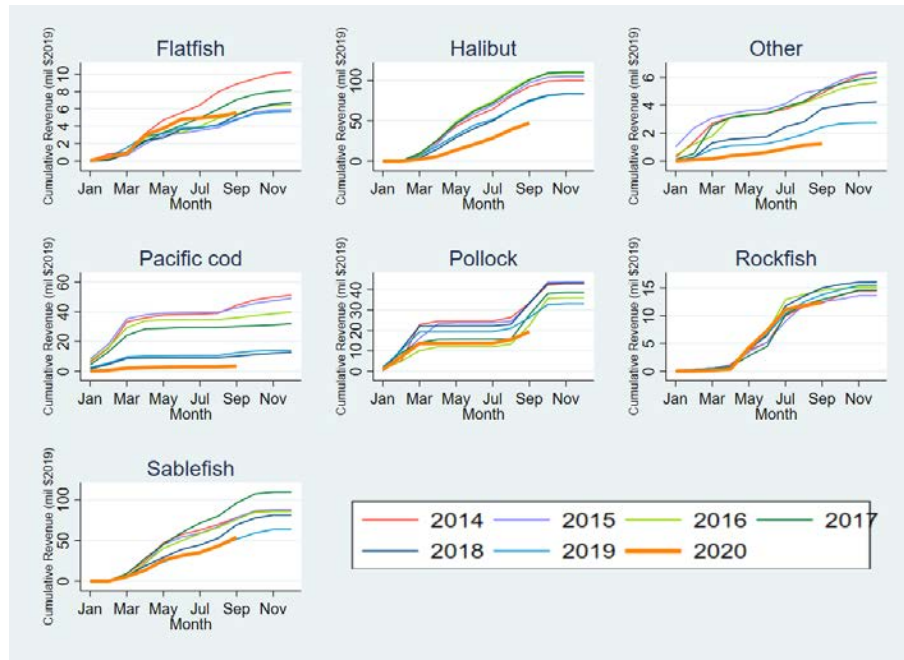


Figure 6.7: GOA Cumulative Ex-vessel Revenue by Species and Year

Due to a combination of lower volumes and lower prices in 2020, GOA groundfish and halibut exhibited declines in estimated ex-vessel revenues relative to 2019, and the 2015-2019 average, of approximately 32% (-\$66 million) and 47% (-\$128 million), respectively. The largest components of the decrease in value relative to 2015-2019 include estimated declines of \$50 million in halibut, \$29 million in sablefish, \$24 million in Pacific cod, and \$19 million in pollock ex-vessel revenues. Compared with 2019, estimated revenue declines in 2020 include \$34 million in halibut, \$13 in pollock, \$10 million in Pacific cod, and \$5 million in sablefish.

GOA Flatfish

January to September GOA flatfish catch in 2020 is down 11% from the 2019 level and even with the 2015-2019 average by volume. However, GOA flatfish revenues are estimated to increase by 2% compared with 2019, which is 10% lower than the average over 2015-2019 (Figures 6.6 and 6.7).

GOA Halibut

January to September 2020 has seen a reduction in GOA halibut landings of approximately 22% from the 2019 level, and from the 2015-2019 average. Reduced landings and lower prices resulted in a decline in revenues of 42% in January to September 2020 relative to the same period in 2019, and a 51% decline relative to the average January to September period from 2015-2019 (Figures 6.6 and 6.7).

GOA Pacific cod

Ex-vessel prices in 2020 have decreased slightly from 2019 but remain above 2014-2018 levels. Consistent with the closure of the directed federal GOA Pacific cod fishery, GOA shoreside landings of Pacific cod have declined by approximately 9% from January to September of 2020 relative to the same period in 2019, while shoreside catches are down 12% from the average January to September period from 2015-2019. Consequently GOA shoreside Pacific cod revenues declined about 74% from

January to September of 2020 compared with 2019, and 87% compared with the average over the same months from 2015-2019 (Figures 6.6 and 6.7).

GOA Pollock

2020 GOA pollock harvests through September are down 32% compared with 2019, and 50% compared with the 2015-2019 average (Figure 6.6). GOA pollock prices are relatively stable relative to 2019 and within the historical range. GOA pollock ex-vessel revenues in 2020 are estimated to be 41% lower than 2019 through September, and 50% below the average over the January to September period from 2015-2019 (Figures 6.6 and 6.7).

GOA Rockfish

Rockfish ex-vessel prices are within the 2014-2019 range. GOA Rockfish harvests through September 2020 are down 8% from 2019 levels, and 4% lower than the average January to September period from 2015-2019. Similarly, ex-vessel revenues through September of 2020 are estimated to be down 15% compared to the January to September period in 2019, and by 14% relative to the same period from 2015-2019 (Figures 6.6 and 6.7).

GOA Sablefish

The fleet has reported sablefish prices to be down by 55% compared to last year in some places, probably driven by the size-based pricing structure for sablefish and the current catch composition of small sablefish. It is possible that not all of the TAC is going to be landed for sablefish as a result, as was true in 2019. GOA Sablefish landings through September 2020 were down 18% from 2019 levels and 15% below the 2015-2019 average (Figure 6.6), while revenue is down by 9% from 2019 levels, and 35% below the January to September 2015-2019 average (Figure 6.7).

7. ALASKA GROUND FISH PRICE PROJECTIONS

7.1. Introduction

The most recent year for which ex-vessel and first-wholesale prices (Tables 12, 17, 28, and 33) are available is 2019. These prices are largely derived from the Commercial Operators Annual Report (COAR). Because of the report’s submission deadline, processing and validation of the data from the report are not completed until July of the following year. Thus, at the time of this report’s writing (November 2020), the most recent COAR data available was for the previous year, 2019. To provide recent information, current (i.e., 2020) prices are estimated (“nowcast”) using related data that is reported at a higher frequency and provides more contemporaneous information on the likely state of prices for 2020. Ex-vessel prices estimates are based on unadjusted prices¹ on fish tickets through the month of Sept. 2020. First-wholesale price estimates are based on export prices through the month of Aug. 2020, estimated global catch, and exchange rates for 2020. In addition to the nowcasts, ex-vessel and first-wholesale prices are projected out over the next 2 years (2021-2022). These projections give a probabilistic characterization of the range of future prices.

The species and products for which price projections are made approximately correspond with the prices in Tables 12, 17, 28, and 33 in Section 4 of this document. With the notable exception that first-wholesale estimates are made for all of Alaska, and no distinction is made between at-sea and shoreside prices. This corresponds with the export data which make no distinction between sectors, only the customs district of origin. Ex-vessel price estimates are only for the shoreside sectors.

Tables 7.1 and 7.2 summarize the price projections for the six years spanning 2017-2022. Prices between 2017-2019 are realized (actual) prices. The summary data provided for the years 2020-2022 are the expected price (mean) and 90% confidence bounds. Confidence bounds give the estimated probability that the price will fall within the bound. Thus, for the 5% bound, 5% of the simulated prices were less than the given value. Similarly, for the 95% bound, 95% of the simulated prices were less (and 5% were greater). Hence, the region between the 5% and 95% bounds can be interpreted as the 90% confidence bound. Smaller confidence bounds indicate less uncertainty in the projections. In general, price projections for the current year, 2020, display a modest degree of volatility. As prices are projected past the current year the confidence bounds grow reflecting increased uncertainty further out in the future.

Methods are briefly outlined in Section 7.3. Sections 7.4 and 7.5 examines the individual ex-vessel and product price projections for 2020-2022. For these projections a more detailed characterization of the forecast distribution is given by the mean, median and 40%, 60%, 80%, and 90% confidence bounds. Figures plot the price projection results as well as historical realized prices.

7.2. Tabular Summary of Price Projection Results

¹Unadjusted prices do not account for year-end bonuses

| Species | Region | Gear | stat. | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|-------------|--------|-------|-------------|-------|-------|-------|-------------|-------------|-------------|
| pollock | BSAI | trawl | mean | 0.137 | 0.156 | 0.167 | 0.157 | 0.161 | 0.162 |
| pollock | BSAI | trawl | conf.int.90 | | | | [0.15,0.16] | [0.12,0.21] | [0.11,0.22] |
| pollock | GOA | trawl | mean | 0.087 | 0.123 | 0.138 | 0.117 | 0.113 | 0.118 |
| pollock | GOA | trawl | conf.int.90 | | | | [0.11,0.12] | [0.08,0.15] | [0.07,0.17] |
| pacific cod | BSAI | trawl | mean | 0.296 | 0.384 | 0.369 | 0.341 | 0.354 | 0.372 |
| pacific cod | BSAI | trawl | conf.int.90 | | | | [0.34,0.35] | [0.24,0.5] | [0.22,0.59] |
| pacific cod | BSAI | fixed | mean | 0.332 | 0.41 | 0.443 | 0.406 | 0.419 | 0.435 |
| pacific cod | BSAI | fixed | conf.int.90 | | | | [0.4,0.41] | [0.28,0.62] | [0.25,0.72] |
| pacific cod | GOA | trawl | mean | 0.329 | 0.412 | 0.456 | 0.333 | 0.321 | 0.367 |
| pacific cod | GOA | trawl | conf.int.90 | | | | [0.33,0.34] | [0.24,0.42] | [0.23,0.55] |
| pacific cod | GOA | fixed | mean | 0.336 | 0.465 | 0.504 | 0.406 | 0.399 | 0.433 |
| pacific cod | GOA | fixed | conf.int.90 | | | | [0.4,0.41] | [0.3,0.53] | [0.28,0.64] |
| sablefish | GOA | fixed | mean | 5.314 | 3.929 | 2.988 | 2.234 | 2.343 | 2.51 |
| sablefish | GOA | fixed | conf.int.90 | | | | [2.05,2.4] | [1.55,3.45] | [1.39,4.2] |

Table 7.1: Groundfish ex-vessel price projection summary

| Species | Product | stat. | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|------------------|-----------------------|-------------|-------|-------|-------|-------------|-------------|-------------|
| pollock | surimi | mean | 1.302 | 1.257 | 1.363 | 1.358 | 1.351 | 1.38 |
| pollock | surimi | conf.int.90 | | | | [1.31,1.4] | [0.96,1.9] | [0.96,1.99] |
| pollock | roe | mean | 2.818 | 2.778 | 2.1 | 1.892 | 2.129 | 2.243 |
| pollock | roe | conf.int.90 | | | | [1.51,2.26] | [1.43,3.09] | [1.3,3.74] |
| pollock | fillet | mean | 1.141 | 1.288 | 1.481 | 1.383 | 1.378 | 1.42 |
| pollock | fillet | conf.int.90 | | | | [1.32,1.44] | [1.12,1.68] | [1.08,1.85] |
| pollock | deep-skin fillet | mean | 1.494 | 1.489 | 1.6 | 1.58 | 1.591 | 1.601 |
| pollock | deep-skin fillet | conf.int.90 | | | | [1.53,1.63] | [1.36,1.84] | [1.29,1.96] |
| pollock | head and gut | mean | 0.435 | 0.472 | 0.562 | 0.51 | 0.523 | 0.527 |
| pollock | head and gut | conf.int.90 | | | | [0.43,0.58] | [0.4,0.68] | [0.38,0.71] |
| pacific cod | fillet | mean | 3.484 | 4.159 | 3.961 | 3.464 | 3.627 | 3.632 |
| pacific cod | fillet | conf.int.90 | | | | [3.33,3.6] | [2.76,4.73] | [2.58,5.07] |
| pacific cod | head and gut | mean | 1.569 | 1.866 | 1.587 | 1.445 | 1.51 | 1.567 |
| pacific cod | head and gut | conf.int.90 | | | | [1.38,1.51] | [1.17,1.94] | [1.11,2.17] |
| sablefish | head and gut | mean | 8.86 | 6.482 | 4.765 | 5.053 | 5.387 | 5.484 |
| sablefish | head and gut | conf.int.90 | | | | [4.74,5.37] | [3.8,7.53] | [3.2,9.06] |
| yellowfin (bsai) | head and gut | mean | 0.657 | 0.817 | 0.786 | 0.74 | 0.743 | 0.756 |
| yellowfin (bsai) | head and gut | conf.int.90 | | | | [0.7,0.78] | [0.6,0.92] | [0.55,1.03] |
| rock sole (bsai) | head and gut with roe | mean | 1.241 | 1.503 | 1.321 | 1.214 | 1.21 | 1.228 |
| rock sole (bsai) | head and gut with roe | conf.int.90 | | | | [1.18,1.25] | [0.91,1.59] | [0.83,1.79] |
| rock sole (bsai) | head and gut | mean | 0.655 | 0.831 | 0.795 | 0.582 | 0.628 | 0.625 |
| rock sole (bsai) | head and gut | conf.int.90 | | | | [0.5,0.66] | [0.43,0.91] | [0.4,0.95] |
| arrowtooth | head and gut | mean | 1.125 | 0.738 | 0.667 | 0.666 | 0.903 | 0.919 |
| arrowtooth | head and gut | conf.int.90 | | | | [0.62,0.71] | [0.58,1.41] | [0.55,1.52] |
| atka mackerel | head and gut | mean | 1.469 | 1.412 | 1.162 | 1.145 | 1.187 | 1.209 |
| atka mackerel | head and gut | conf.int.90 | | | | [1.03,1.27] | [0.78,1.78] | [0.68,2.11] |
| rockfish | head and gut | mean | 1.183 | 1.141 | 0.835 | 0.887 | 0.958 | 0.953 |
| rockfish | head and gut | conf.int.90 | | | | [0.78,0.99] | [0.68,1.33] | [0.6,1.48] |

Table 7.2: Groundfish wholesale product price projection summary

7.3. Summary of Price Projection Methods

Prices are estimated using a two-step procedure. The same basic procedure is used for both ex-vessel and first wholesale nowcasts and projections. The first step nowcasts the current year 2020 prices based on currently available (as of Oct. 2020) partial year information. The second step projects prices forward using model simulations to give a probabilistic characterization of the range of future prices.

Current year first-wholesale prices (2020) were nowcast using export prices which are available with a minimal time lag of up to three months. Export prices through August 2020 were available for the current nowcasts. Export prices were obtained from the NMFS Science and Technology trade database. Nowcast models also incorporate 2020 exchange rate data and global catch estimates when they were determined to increase predictability. Global catch estimates for 2020 were obtained from the 2020 International Groundfish Forum. The data were used in a regression to estimate 2020 annual unit value first-wholesale prices of major species and product forms calculated from the COAR and published in Tables 17 and 33 of this report. The statistical relationship between export prices and first-wholesale prices was fairly strong for most products. The relationship tends to be stronger for product where a large share of the production volume is exported.

Nowcasts of 2020 ex-vessel prices were made for shoreside pollock, pacific cod, and sablefish for the predominant gear types used to harvest these species. Nowcasts were made using available fish-ticket prices through October 2020. These data were obtained through the Alaska Fisheries Information Network (AKFIN) from the V_ELLR_SLOG_PRODUCT database. Data were filtered to the major delivered product forms fit for human consumption and stratified by gear types accordingly. Prices are calculated as the remunerations received at the time of landing divided by the delivered volume. Because of this, these prices do not account for end-of-year bonuses or other post-season adjustments to price. The data were used in a regression to estimate 2020 annual unit value ex-vessel prices calculated from the COAR and published in Tables 12 and 28 of this report. By contrast, COAR based ex-vessel prices do account for end of bonuses and other post-season adjustments to price. The statistical relationship between raw partial year fish-ticket prices and annual COAR based ex-vessel prices was strong for the species and gear types presented.

Price projections for the years 2021-2022 were made using a suite of canonical time series models to estimate returns (the percent change in price). The primary suite of models used were within the class of ARMA time series models (Hamilton, 1994). Two exponential smoothing models were also used, however, these tended to contribute little to the price projections (Hyndman & Athanasopoulos, 2013). Changes in price return volatility (a measure of the dispersion of the return distribution) over time were also modeled. Confidence bounds for the estimated models were constructed using residual resampling methods. Simulations created a probabilistic distribution of potential returns that are consistent with historical deviations from the models. Price projections from the suite of models were then combined using weights that were determined by model fit. Prices were calculated from returns and statistics such as the mean and percentiles for confidence bounds were calculated from the forecast distribution. Only a small component of the future prices (2021-2022) was forecastable by the time series models, a feature that is common in price forecasts for commodities, and projections largely reflect the long-run trends and mean reversion estimated by the models. The primary value of these projections is to provide a credible range of potential future prices based on historical variation.

7.4. Ex-vessel Price Projections

7.4.1 Alaska Pollock Ex-vessel Prices

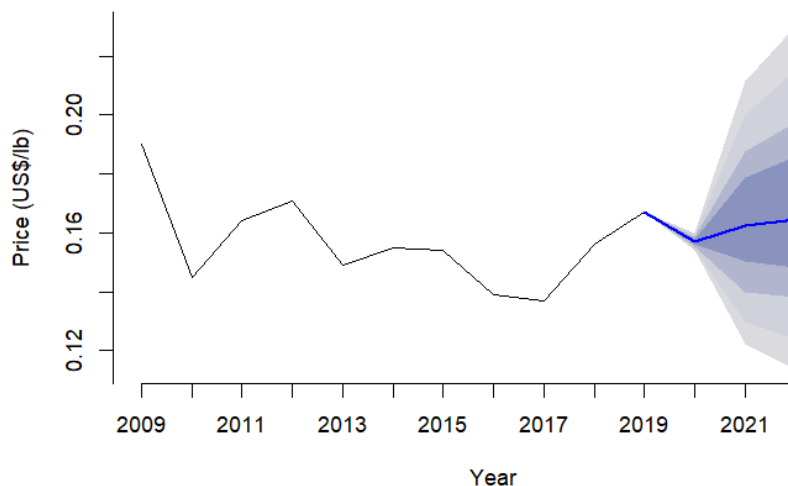


Figure 7.1: Pollock BSAI trawl ex-vessel price projections and confidence bounds

Table 7.3: Projected mean, probability bounds of pollock BSAI trawl ex-vessel prices (US\$/lb)

| | Lower | | | | | | Upper | | | |
|------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|
| | 5% | 10% | 20% | 30% | mean | Median | 70% | 80% | 90% | 95% |
| 2020 | 0.154 | 0.155 | 0.155 | 0.156 | 0.157 | 0.157 | 0.158 | 0.159 | 0.159 | 0.160 |
| 2021 | 0.122 | 0.130 | 0.140 | 0.150 | 0.162 | 0.165 | 0.179 | 0.188 | 0.200 | 0.212 |
| 2022 | 0.113 | 0.124 | 0.138 | 0.148 | 0.165 | 0.167 | 0.186 | 0.197 | 0.215 | 0.230 |

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

| Pollock BSAI trawl ex-vessel return volatility projections | | | | |
|--|------|-------|-------|----------|
| Hist. | Avg. | 2021 | 2022 | Long-run |
| 18.10 | | 18.10 | 18.10 | 18.10 |

Pollock accounted for 74% of the ex-vessel value for the BSAI catcher vessels (CV) in 2019 and is targeted using trawl gear. BSAI trawl CV pollock retained catch increased 2% in 2019, correspondingly with the TAC. The realized ex-vessel price of BSAI trawl pollock increased 7% to \$0.167/lb in 2019. Price projections from last year's report indicated an increase as well and had 95% confidence bounds of \$0.163/lb to \$0.170/lb with a median of \$0.166/lb, placing the realized price within the projected range. This year's price projections for the 2020 BSAI trawl pollock ex-vessel price have a median of \$0.157/lb with 95% confidence bounds of \$0.153/lb to \$0.161/lb. (Figure 7.1). These estimates imply that a price decrease in 2020 is likely. Catch data through Sept. 2020 show a 7% decrease in the year-over-year BSAI trawl CV pollock catch. BSAI trawl pollock ex-vessel price projections for 2021 and beyond based on historical trends indicate that expected prices may bounce back in 2021. Because of the substantial volatility a range of potential increases or decreases are plausible.

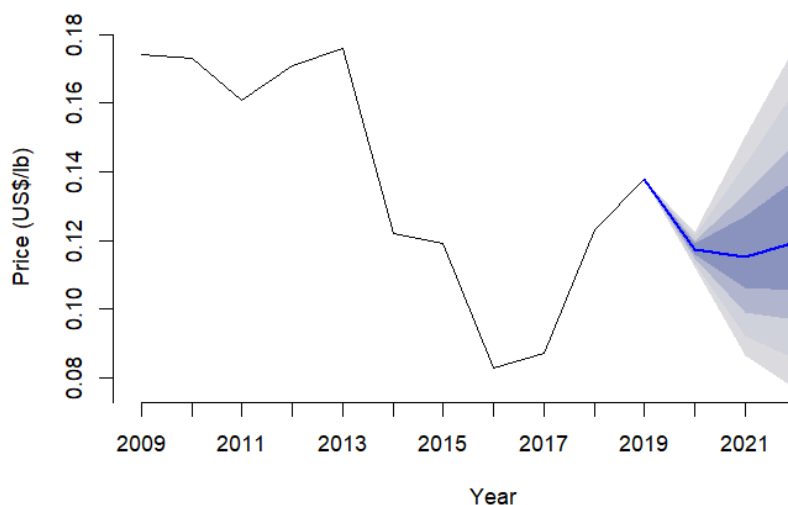


Figure 7.2: Pollock GOA trawl ex-vessel price projections and confidence bounds

Table 7.4: Projected mean, probability bounds of pollock GOA trawl ex-vessel prices (US\$/lb)

| | Lower | | | | | | Upper | | | |
|------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|
| | 5% | 10% | 20% | 30% | mean | Median | 70% | 80% | 90% | 95% |
| 2020 | 0.112 | 0.114 | 0.115 | 0.116 | 0.117 | 0.117 | 0.119 | 0.120 | 0.121 | 0.123 |
| 2021 | 0.087 | 0.092 | 0.099 | 0.106 | 0.115 | 0.117 | 0.127 | 0.134 | 0.142 | 0.150 |
| 2022 | 0.077 | 0.085 | 0.097 | 0.105 | 0.120 | 0.121 | 0.138 | 0.149 | 0.164 | 0.177 |

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

| Pollock GOA trawl ex-vessel return volatility projections | | | |
|---|-------|-------|----------|
| Hist. Avg. | 2021 | 2022 | Long-run |
| 18.49 | 18.05 | 18.86 | 18.48 |

Pollock accounted for 29% of the ex-vessel value for the GOA catcher vessels (CV) in 2019 and is targeted using trawl gear. GOA trawl CV pollock retained catch decreased 24% in 2019. The realized ex-vessel price of GOA trawl pollock increased 12% to \$0.138/lb. Price projections from last year's report indicated an increase as well and had 95% confidence bounds of \$0.119/lb to \$0.134/lb with a median of \$0.127/lb, placing the realized price \$0.004/lb above the projected range. This year's price projections for the 2020 GOA trawl pollock ex-vessel price have a median of \$0.117/lb with 95% confidence bounds of \$0.112/lb to \$0.124/lb. (Figure 7.2). These estimates imply that the 2020 price will likely decrease. Catch data through Sept. 2020 show a 12% decrease in the year-over-year GOA trawl CV pollock catch. GOA trawl pollock ex-vessel price projections for 2021 and beyond based on historical trends indicate that expected prices do not exhibit a significant trend or potential mean reversion. Because of the substantial volatility a range of potential increases or decreases are plausible.

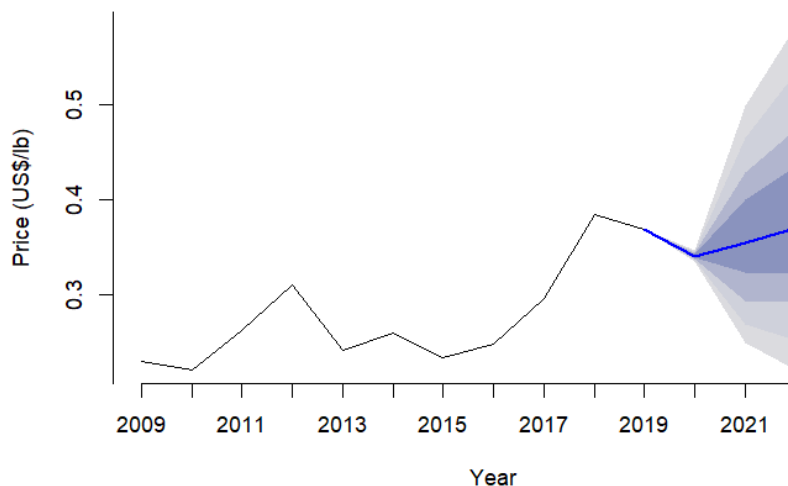


Figure 7.3: Pacific cod BSAI trawl ex-vessel price projections and confidence bounds

Table 7.5: Projected mean, probability bounds of pacific cod BSAI trawl ex-vessel prices (US\$/lb)

| | Lower | | | | | | Upper | | | |
|------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|
| | 5% | 10% | 20% | 30% | mean | Median | 70% | 80% | 90% | 95% |
| 2020 | 0.335 | 0.336 | 0.338 | 0.339 | 0.341 | 0.341 | 0.343 | 0.344 | 0.345 | 0.346 |
| 2021 | 0.249 | 0.268 | 0.294 | 0.323 | 0.355 | 0.361 | 0.400 | 0.429 | 0.465 | 0.499 |
| 2022 | 0.221 | 0.252 | 0.293 | 0.322 | 0.370 | 0.377 | 0.435 | 0.474 | 0.533 | 0.583 |

At the ‘Lower’ and ‘Upper’ bounds x% of the simulated prices were less. The confidence bounds are the regions between the ‘Upper’ and ‘Lower’ bounds.

| Pacific cod BSAI trawl ex-vessel return volatility projections | | | | |
|--|------|-------|-------|----------|
| Hist. | Avg. | 2021 | 2022 | Long-run |
| 23.37 | | 22.96 | 24.27 | 24.55 |

7.4.2 Pacific Cod Ex-vessel Prices

Pacific cod accounted for 20% of the ex-vessel value for the BSAI catcher vessels in 2019 and catches from trawl gear accounted for 31% of the BSAI Pacific cod value. BSAI trawl CV Pacific cod retained catch decreased 15% in 2019. The realized ex-vessel price of BSAI trawl Pacific cod decreased 4% to \$0.369/lb. Price projections from last year’s report indicated an decrease as well and had 95% confidence bounds of \$0.374/lb to \$0.385/lb with a median of \$0.380/lb, placing the realized price below the projected range. This year’s price projections for the 2020 BSAI trawl Pacific cod ex-vessel price have a median of \$0.341/lb with 95% confidence bounds of \$0.334/lb to \$0.348/lb. (Figure 7.3). These estimates imply that prices in 2020 will likely decrease. Catch data through Sept. 2020 show a 4% decrease in the year-over-year BSAI trawl Pacific cod catch. BSAI trawl Pacific cod ex-vessel price projections for 2021 and beyond based on historical trends indicate that expected prices may bounce back. Because of the substantial volatility a range of potential increases or decreases are plausible.

Pacific cod accounted for 20% of the ex-vessel value for the BSAI catcher vessels in 2019 and catches from fixed gear accounted for 69% of the BSAI Pacific cod value. BSAI fixed gear Pacific cod

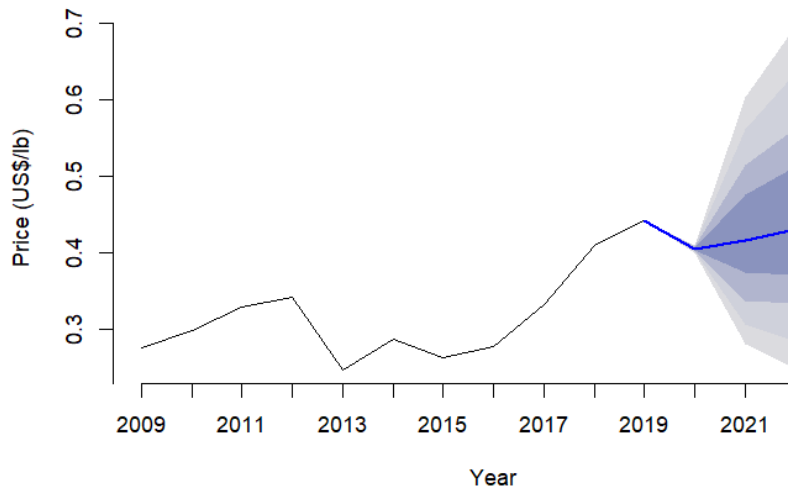


Figure 7.4: Pacific cod BSAI fixed gear ex-vessel price projections and confidence bounds

Table 7.6: Projected mean, probability bounds of pacific cod BSAI fixed gear ex-vessel prices (US\$/lb)

| | Lower | | | | | | Upper | | | |
|------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|
| | 5% | 10% | 20% | 30% | mean | Median | 70% | 80% | 90% | 95% |
| 2020 | 0.401 | 0.402 | 0.403 | 0.404 | 0.406 | 0.406 | 0.407 | 0.408 | 0.410 | 0.411 |
| 2021 | 0.282 | 0.306 | 0.337 | 0.375 | 0.417 | 0.426 | 0.476 | 0.514 | 0.561 | 0.604 |
| 2022 | 0.250 | 0.284 | 0.334 | 0.372 | 0.431 | 0.439 | 0.513 | 0.564 | 0.636 | 0.697 |

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

| Pacific cod BSAI fixed gear ex-vessel return volatility projections | | | | |
|---|------|-------|-------|----------|
| Hist. | Avg. | 2021 | 2022 | Long-run |
| 25.05 | | 25.09 | 25.60 | 25.71 |

retained catch decreased 3% in 2019. The realized ex-vessel price of BSAI fixed gear Pacific cod increased 8% to \$0.443/lb. Price projections from last year's report indicated an increase as well and had 95% confidence bounds of \$0.425/lb to \$0.439/lb with a median of \$0.432/lb, placing the realized price above the projected range. This year's price projections for the 2020 BSAI fixed gear Pacific cod ex-vessel price have a median of \$0.406/lb with 95% confidence bounds of \$0.400/lb to \$0.412/lb. (Figure 7.4). These estimates imply that a price decrease in 2020 is likely. Catch data through Sept. 2020 show a 9% decrease in the year-over-year BSAI fixed gear Pacific cod catch. BSAI fixed gear Pacific cod ex-vessel price projections for 2021 and beyond based on historical trends indicate that expected prices may bounce back. Because of the substantial volatility a range of potential increases or decreases are plausible.

Pacific cod accounted for 11% of the ex-vessel value for the GOA catcher vessels (CV) in 2019 and catches from trawl gear accounted for 24% of the GOA Pacific cod value. GOA trawl Pacific cod retained catch increased 10% in 2019. The realized ex-vessel price of GOA trawl Pacific cod increased 11% to \$0.456/lb. Price projections from last year's report indicated an increase as well and had 95% confidence bounds of \$0.440/lb to \$0.457/lb with a median of \$0.448/lb, placing the

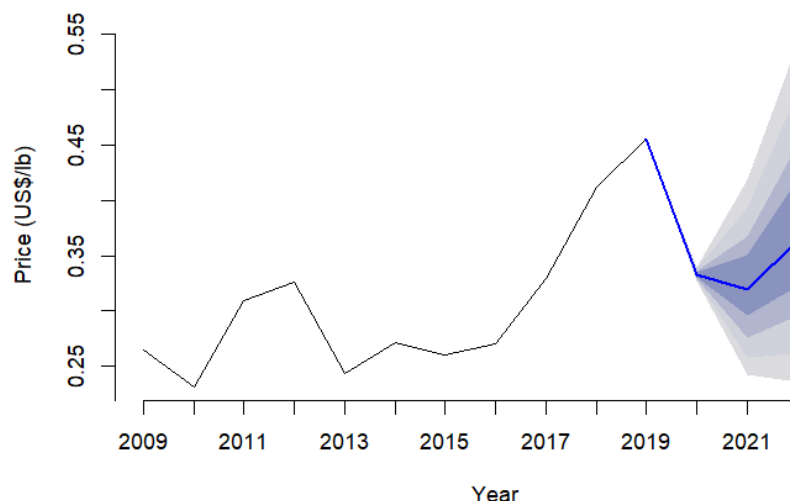


Figure 7.5: Pacific cod GOA trawl ex-vessel price projections and confidence bounds

Table 7.7: Projected mean, probability bounds of pacific cod GOA trawl ex-vessel prices (US\$/lb)

| | Lower | | | | | | Upper | | | |
|------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|
| | 5% | 10% | 20% | 30% | mean | Median | 70% | 80% | 90% | 95% |
| 2020 | 0.327 | 0.328 | 0.330 | 0.331 | 0.333 | 0.333 | 0.335 | 0.336 | 0.338 | 0.340 |
| 2021 | 0.242 | 0.258 | 0.276 | 0.296 | 0.320 | 0.323 | 0.350 | 0.367 | 0.393 | 0.418 |
| 2022 | 0.235 | 0.261 | 0.296 | 0.322 | 0.364 | 0.368 | 0.419 | 0.451 | 0.499 | 0.542 |

At the ‘Lower’ and ‘Upper’ bounds x% of the simulated prices were less. The confidence bounds are the regions between the ‘Upper’ and ‘Lower’ bounds.

| Pacific cod GOA trawl ex-vessel return volatility projections | | | | |
|---|------|-------|-------|----------|
| Hist. | Avg. | 2021 | 2022 | Long-run |
| 18.41 | | 17.46 | 17.63 | 19.90 |

realized price within the projected range. This year’s price projections for the 2020 GOA trawl Pacific cod ex-vessel price have a median of \$0.333/lb with 95% confidence bounds of \$0.325/lb to \$0.341/lb. (Figure 7.5). These estimates imply that a price decrease in 2020 is likely. Catch data through Sept. 2020 show a 36% decrease in the year-over-year GOA trawl CV Pacific cod catch. GOA trawl Pacific cod ex-vessel price projections for 2021 and beyond based on historical trends indicate that expected prices may decrease in 2021 before rebounding in 2022. Because of the substantial volatility a range of potential increases or decreases are plausible.

Pacific cod accounted for 11% of the ex-vessel value for the GOA catcher vessels in 2019 and catches from fixed gear accounted for 76% of the GOA Pacific cod value. GOA fixed gear Pacific cod retained catch remained level in 2019 relative to 2018. The realized ex-vessel price of GOA fixed gear Pacific cod increased 8% to \$0.504/lb. Price projections from last year’s report indicated an increase as well and had 95% confidence bounds of \$0.499/lb to \$0.511/lb with a median of \$0.505/lb, placing the realized price within the projected range. This year’s price projections for the 2020 GOA fixed gear Pacific cod ex-vessel price have a median of \$0.406/lb with 95% confidence bounds of \$0.396/lb to \$0.415/lb. (Figure 7.7). These estimates imply that a price decrease in 2020 is likely. Catch data through Sept. 2020 show a 71% decrease in the year-over-year GOA fixed gear

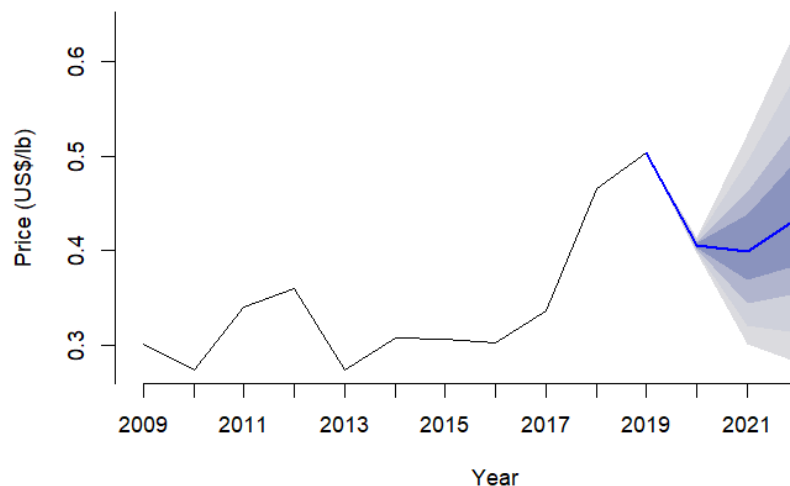


Figure 7.6: Pacific cod GOA fixed gear ex-vessel price projections and confidence bounds

Table 7.8: Projected mean, probability bounds of pacific cod GOA fixed gear ex-vessel prices (US\$/lb)

| | Lower | | | | | | Upper | | | |
|------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|
| | 5% | 10% | 20% | 30% | mean | Median | 70% | 80% | 90% | 95% |
| 2020 | 0.398 | 0.399 | 0.401 | 0.403 | 0.406 | 0.406 | 0.408 | 0.410 | 0.412 | 0.414 |
| 2021 | 0.301 | 0.320 | 0.344 | 0.369 | 0.399 | 0.403 | 0.438 | 0.461 | 0.494 | 0.523 |
| 2022 | 0.282 | 0.313 | 0.355 | 0.385 | 0.434 | 0.439 | 0.496 | 0.534 | 0.590 | 0.638 |

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

| Pacific cod GOA fixed gear ex-vessel return volatility projections | | | | |
|--|-------|-------|----------|--|
| Hist. Avg. | 2021 | 2022 | Long-run | |
| 18.83 | 18.05 | 18.06 | 18.39 | |

Pacific cod catch. GOA fixed gear Pacific cod ex-vessel price projections for 2021 and beyond based on historical trends indicate that expected prices may decrease in 2021 before rebounding in 2022. Because of the substantial volatility a range of potential increases or decreases are plausible.

Pacific cod accounted for 11% of the ex-vessel value for the GOA catcher vessels in 2019 and catches from fixed gear accounted for 76% of the GOA Pacific cod value. GOA fixed gear Pacific cod retained catch remained level in 2019 relative to 2018. The realized ex-vessel price of GOA fixed gear Pacific cod increased 8% to \$0.504/lb. Price projections from last year's report indicated an increase as well and had 95% confidence bounds of \$0.499/lb to \$0.511/lb with a median of \$0.505/lb, placing the realized price within the projected range. This year's price projections for the 2020 GOA fixed gear Pacific cod ex-vessel price have a median of \$0.406/lb with 95% confidence bounds of \$0.396/lb to \$0.415/lb. (Figure 7.7). These estimates imply that a price decrease in 2020 is likely. Catch data through Sept. 2020 show a 71% decrease in the year-over-year GOA fixed gear Pacific cod catch. GOA fixed gear Pacific cod ex-vessel price projections for 2021 and beyond based on historical trends indicate that expected prices may decrease in 2021 before rebounding in 2022. Because of the substantial volatility a range of potential increases or decreases are plausible.

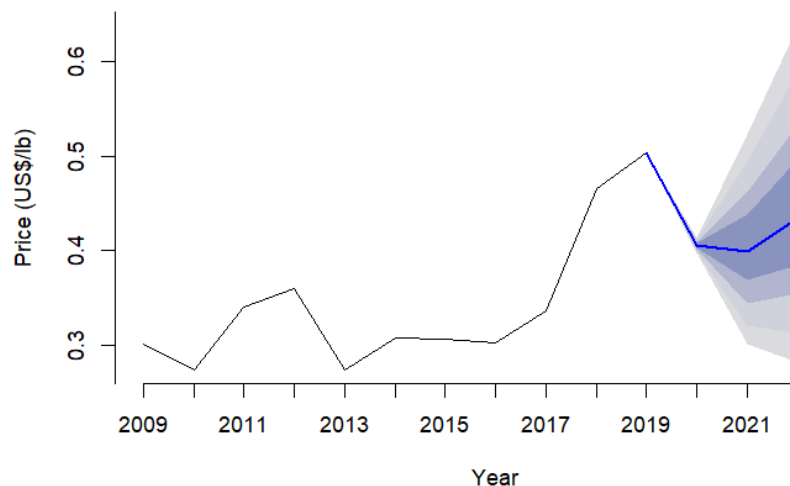


Figure 7.7: Pacific cod GOA fixed gear ex-vessel price projections and confidence bounds

Table 7.9: Projected mean, probability bounds of pacific cod GOA fixed gear ex-vessel prices (US\$/lb)

| | Lower | | | | | | Upper | | | |
|------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|
| | 5% | 10% | 20% | 30% | mean | Median | 70% | 80% | 90% | 95% |
| 2020 | 0.398 | 0.399 | 0.401 | 0.403 | 0.406 | 0.406 | 0.408 | 0.410 | 0.412 | 0.414 |
| 2021 | 0.301 | 0.320 | 0.344 | 0.369 | 0.399 | 0.403 | 0.438 | 0.461 | 0.494 | 0.523 |
| 2022 | 0.282 | 0.313 | 0.355 | 0.385 | 0.434 | 0.439 | 0.496 | 0.534 | 0.590 | 0.638 |

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

| Pacific cod GOA fixed gear ex-vessel return volatility projections | | | | |
|--|-------|-------|----------|--|
| Hist. Avg. | 2021 | 2022 | Long-run | |
| 18.83 | 18.05 | 18.06 | 18.39 | |

7.4.3 Sablefish Ex-vessel Prices

Sablefish accounted for 49% of the ex-vessel value for the GOA catcher vessels in 2019 and is targeted primarily using fixed gear. GOA fixed gear sablefish retained catch increased 1.3% in 2019. The realized ex-vessel price of GOA fixed gear sablefish decreased 24% to \$2.988/lb. Price projections from last year's report indicated an decrease as well and had 95% confidence bounds of \$3.127/lb to \$3.346/lb with a median of \$3.237/lb, placing the realized price below the projected range. This year's price projections for the 2020 GOA fixed gear sablefish ex-vessel price have a median of \$2.233/lb with 95% confidence bounds of \$2.032/lb to \$2.445/lb. (Figure 7.8). These estimates imply that a price decrease in 2020 is likely. Catch data through Sept. 2020 show a 1.3% increase in the year-over-year GOA fixed gear sablefish catch. GOA fixed gear sablefish ex-vessel price projections for 2021 and beyond based on historical trends indicate that expected prices may show mean reversion by increasing. Because of the substantial volatility a range of potential increases or decreases are plausible.

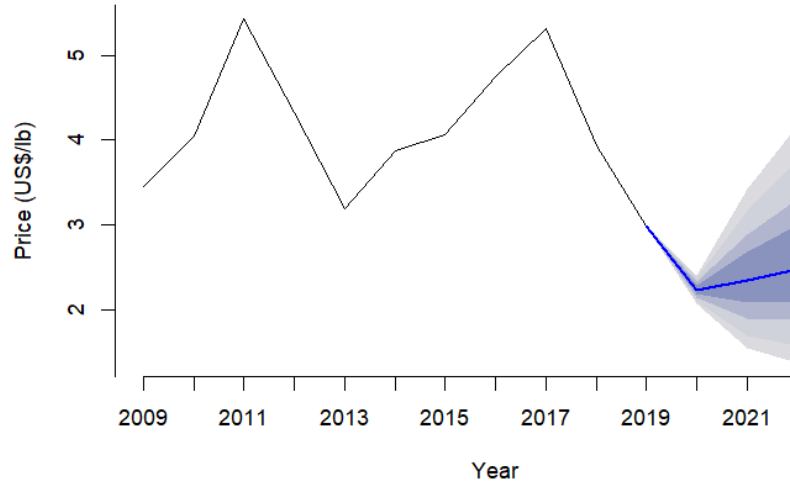


Figure 7.8: Sablefish GOA fixed gear ex-vessel price projections and confidence bounds

Table 7.10: Projected mean, probability bounds of sablefish GOA fixed gear ex-vessel prices (US\$/lb)

| | Lower | | | | | Upper | | | | |
|------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|
| | 5% | 10% | 20% | 30% | mean | Median | 70% | 80% | 90% | 95% |
| 2020 | 2.064 | 2.102 | 2.147 | 2.179 | 2.234 | 2.233 | 2.290 | 2.323 | 2.369 | 2.410 |
| 2021 | 1.536 | 1.695 | 1.896 | 2.080 | 2.340 | 2.393 | 2.683 | 2.879 | 3.163 | 3.424 |
| 2022 | 1.365 | 1.578 | 1.876 | 2.102 | 2.479 | 2.530 | 2.995 | 3.308 | 3.762 | 4.185 |

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

| Sablefish GOA fixed gear ex-vessel return volatility projections | | | |
|--|------|-------|----------|
| Hist. | Avg. | 2021 | 2022 |
| 20.21 | | 25.79 | 24.30 |
| | | | Long-run |
| | | | 21.81 |

7.5. First-Wholesale Product Price Projections

7.5.1 Alaska Pollock

In the North Pacific FMP groundfish fisheries 66% of the wholesale value came from Alaska pollock in 2019 (Tables 16 and 32). The primary products produced from pollock are surimi, fillets and roe. Fillets have been divided into deep-skin fillets and all other fillets (which are simply labeled fillets).

Pollock Surimi First-Wholesale Prices

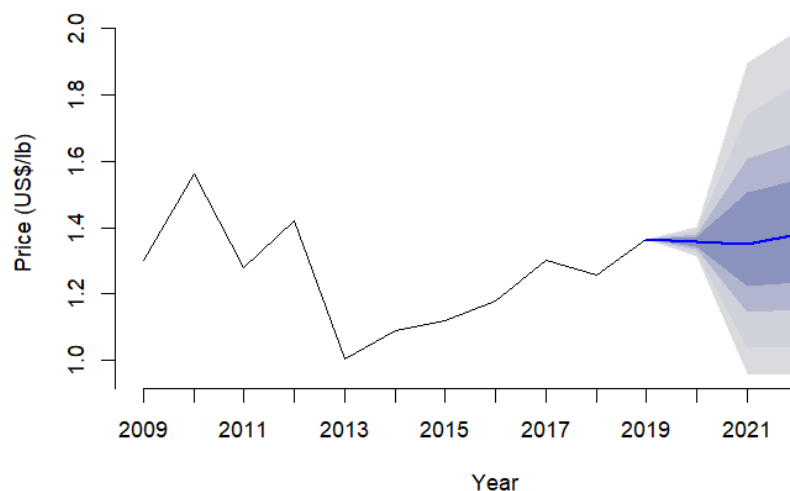


Figure 7.9: Pollock surimi wholesale price projections and confidence bounds

Table 7.11: Projected mean, probability bounds of pollock surimi wholesale prices (US\$/lb)

| | Lower | | | | mean | Median | Upper | | | |
|------|-------|------|------|------|------|--------|-------|------|------|------|
| | 5% | 10% | 20% | 30% | | | 70% | 80% | 90% | 95% |
| 2020 | 1.31 | 1.32 | 1.34 | 1.34 | 1.36 | 1.36 | 1.37 | 1.38 | 1.39 | 1.40 |
| 2021 | 0.96 | 1.04 | 1.14 | 1.22 | 1.35 | 1.35 | 1.51 | 1.61 | 1.74 | 1.90 |
| 2022 | 0.96 | 1.04 | 1.15 | 1.24 | 1.38 | 1.38 | 1.55 | 1.66 | 1.83 | 1.99 |

At the ‘Lower’ and ‘Upper’ bounds x% of the simulated prices were less. The confidence bounds are the regions between the ‘Upper’ and ‘Lower’ bounds.

| Pollock surimi wholesale return volatility projections | | | | |
|--|-------|-------|----------|--|
| Hist. Avg. | 2021 | 2022 | Long-run | |
| 21.76 | 21.76 | 21.76 | 21.76 | |

The production of pollock surimi decreased 3.4% in 2019 and the first-wholesale price increased 8.5% to \$1.363/lb. The price decrease was consistent with the decrease estimated last year and was inside last year’s estimated 95% confidence bounds for the 2019 price which were \$1.350/lb and \$1.448/lb with a median of \$1.396/lb. The current first-wholesale surimi 2020 price projection 95% confidence bounds are \$1.303/lb and \$1.411/lb with a median of \$1.358/lb (Figure 7.9; Table 7.11). Surimi export prices tend to provide a reasonably good prediction of the state of surimi prices. These

estimates imply that a price decrease in 2020 is somewhat likely though stable or a slight increase are also within the estimated range. Production data through Oct. 3, 2020 show a 15% decrease in year-over-year surimi production. Projections of surimi prices for 2021 and beyond indicate that based on historical patterns may fluctuate with no expected trend up or down. Volatility projections suggest that the recent level of volatility will persist in the near-term and are consistent with the historical average.

Pollock Fillet First-Wholesale Prices

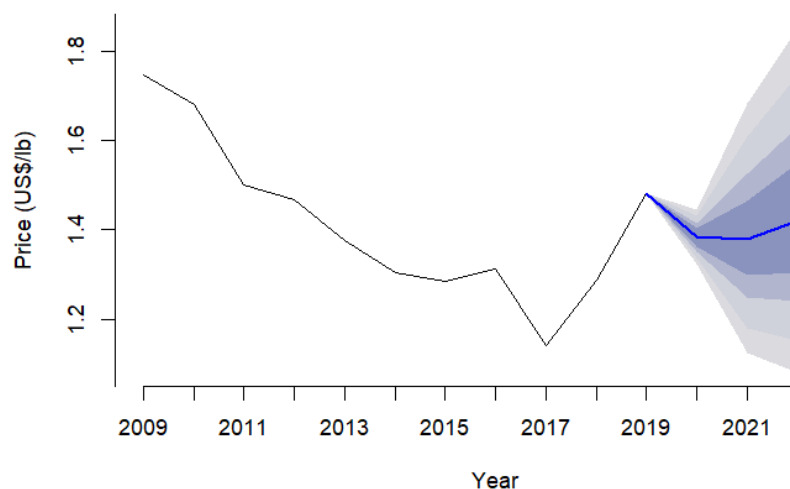


Figure 7.10: Pollock fillet wholesale price projections and confidence bounds

Table 7.12: Projected mean, probability bounds of pollock fillet wholesale prices (US\$/lb)

| | Lower | | | | mean | Median | Upper | | | |
|------|-------|------|------|------|------|--------|-------|------|------|------|
| | 5% | 10% | 20% | 30% | | | 70% | 80% | 90% | 95% |
| 2020 | 1.32 | 1.34 | 1.35 | 1.36 | 1.38 | 1.38 | 1.40 | 1.41 | 1.43 | 1.44 |
| 2021 | 1.12 | 1.18 | 1.25 | 1.30 | 1.38 | 1.38 | 1.47 | 1.53 | 1.61 | 1.68 |
| 2022 | 1.08 | 1.15 | 1.24 | 1.30 | 1.42 | 1.42 | 1.55 | 1.63 | 1.75 | 1.85 |

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

| Pollock fillet wholesale return volatility projections | | | | |
|--|-------|-------|----------|--|
| Hist. Avg. | 2021 | 2022 | Long-run | |
| 13.43 | 12.67 | 12.38 | 14.93 | |

The production of pollock fillets increased 11% in 2019 and the price increased 15% to \$1.481/lb. The price increase was inconsistent with the projected stable prices from last year projection and was above last year's estimated confidence bounds which had a median of \$1.286/lb and 95% confidence bounds of \$1.226/lb and \$1.349/lb. Current projections for the 2020 fillet price have 95% confidence bounds of \$1.312/lb to \$1.456/lb with a median of \$1.384/lb (Figure 7.10). These estimates imply that prices are likely to decrease in 2020. Production data through Oct. 3, 2020 show that year-over-year fillet production is down 25% in 2020. Projections of fillet prices for 2021 and beyond indicate that based on historical patterns expected prices do not exhibit a significant

trend or potential mean reversion. Volatility projections indicate that future volatility may decrease. Because of the substantial volatility a range of potential increases or decreases are plausible.

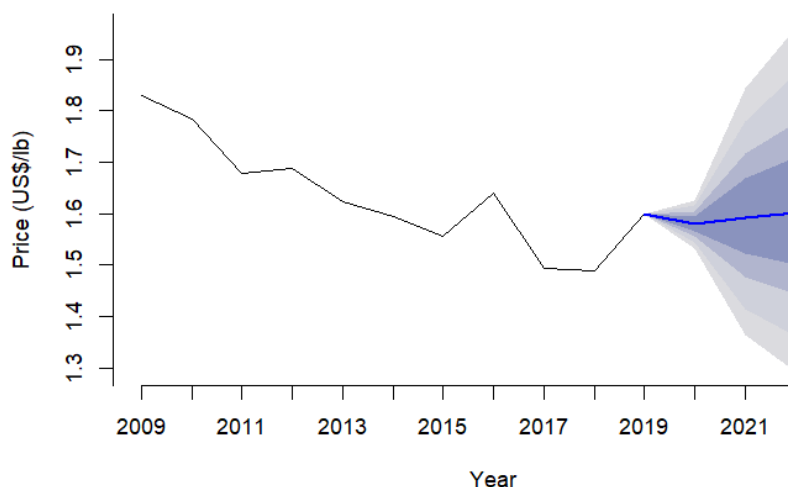


Figure 7.11: Pollock deep-skin fillet wholesale price projections and confidence bounds

Table 7.13: Projected mean, probability bounds of pollock deep-skin fillet wholesale prices (US\$/lb)

| | Lower | | | | | mean | Median | Upper | | | |
|------|-------|------|------|------|------|------|--------|-------|------|------|------|
| | 5% | 10% | 20% | 30% | | | | 70% | 80% | 90% | 95% |
| 2020 | 1.53 | 1.54 | 1.56 | 1.57 | 1.58 | 1.58 | 1.58 | 1.59 | 1.60 | 1.62 | 1.63 |
| 2021 | 1.36 | 1.41 | 1.48 | 1.52 | 1.59 | 1.60 | 1.60 | 1.67 | 1.72 | 1.78 | 1.84 |
| 2022 | 1.29 | 1.36 | 1.44 | 1.50 | 1.60 | 1.60 | 1.60 | 1.71 | 1.78 | 1.87 | 1.96 |

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

| Pollock deep-skin fillet wholesale return volatility projections | | | | |
|--|------|------|----------|--|
| Hist. Avg. | 2021 | 2022 | Long-run | |
| 9.62 | 9.47 | 9.80 | 11.00 | |

The volume of deep-skin fillets produced increased 2.5% and prices increased 7.5% to \$1.60/lb in 2019. The price increase was consistent with the projected increase from last year and was above last year's estimated 95% confidence bounds of \$1.498/lb to \$1.584/lb with a median of \$1.540/lb. Current estimates for the 2020 deep-skin fillet price have 95% confidence bounds of \$1.524/lb to \$1.636/lb with a median estimate of \$1.580/lb (Figure 7.11). These estimates imply that the 2020 price will likely remain stable with the potential for increases or decreases also within the projected range. Production data through Oct. 3 2020 indicate an 16% decrease in year-over-year production. Projections of deep-skin fillet prices for 2021 and beyond based on historical trends indicate that expected prices do not exhibit a significant trend or potential mean reversion. Because of the substantial volatility a range of potential increases or decreases are plausible. Volatility estimates indicate that expected return volatility may increase in the future.

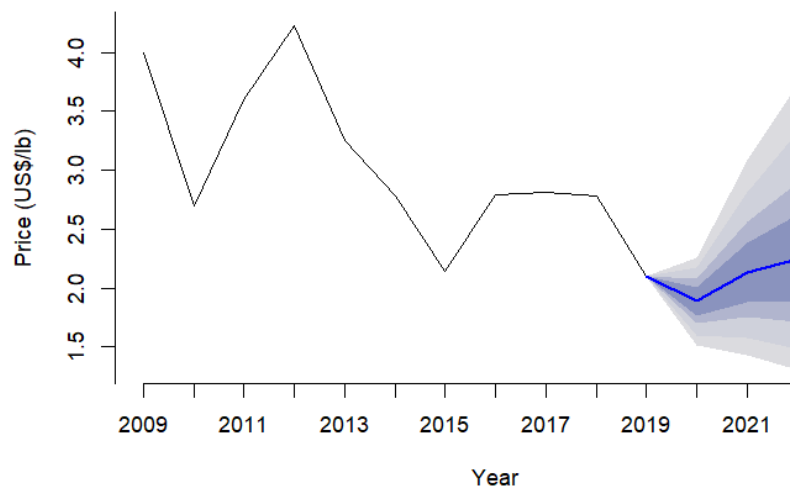


Figure 7.12: Pollock roe wholesale price projections and confidence bounds

Table 7.14: Projected mean, probability bounds of pollock roe wholesale prices (US\$/lb)

| | Lower | | | | | | Upper | | | |
|------|-------|------|------|------|------|--------|-------|------|------|------|
| | 5% | 10% | 20% | 30% | mean | Median | 70% | 80% | 90% | 95% |
| 2020 | 1.51 | 1.60 | 1.70 | 1.77 | 1.89 | 1.89 | 2.01 | 2.08 | 2.18 | 2.26 |
| 2021 | 1.43 | 1.58 | 1.75 | 1.88 | 2.13 | 2.11 | 2.39 | 2.56 | 2.82 | 3.09 |
| 2022 | 1.30 | 1.48 | 1.71 | 1.89 | 2.24 | 2.24 | 2.63 | 2.90 | 3.33 | 3.74 |

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

| Pollock roe wholesale return volatility projections | | | | |
|---|-------|-------|----------|--|
| Hist. Avg. | 2021 | 2022 | Long-run | |
| 22.12 | 21.08 | 22.59 | 22.75 | |

Pollock Roe First-Wholesale Prices

Pollock roe production increased 30% in 2019 and prices decreased 24% to \$2.10/lb. The price decrease was consistent with the projected decrease from last year and was within last year's estimated 95% confidence bounds of \$1.324/lb and \$2.287/lb and a median of \$1.886/lb. The projected first-wholesale pollock roe price for 2020 has a median estimate of \$1.888/lb and 95% confidence bounds of \$1.433/lb and \$2.334/lb (Figure 7.12). These estimates imply that a decrease in roe prices for 2020 is somewhat likely though stable or slight increases are within the projected range. Projections of roe prices for 2021 and beyond indicate that based on historical patterns prices may trend back up reverting back towards recent levels. Production data through Oct. 3, 2020 indicate that production is down 12% year-over-year. Because of the substantial volatility a range of potential increases or decreases are plausible. There is considerable volatility in pollock roe returns which is projected to increase in the long-run.

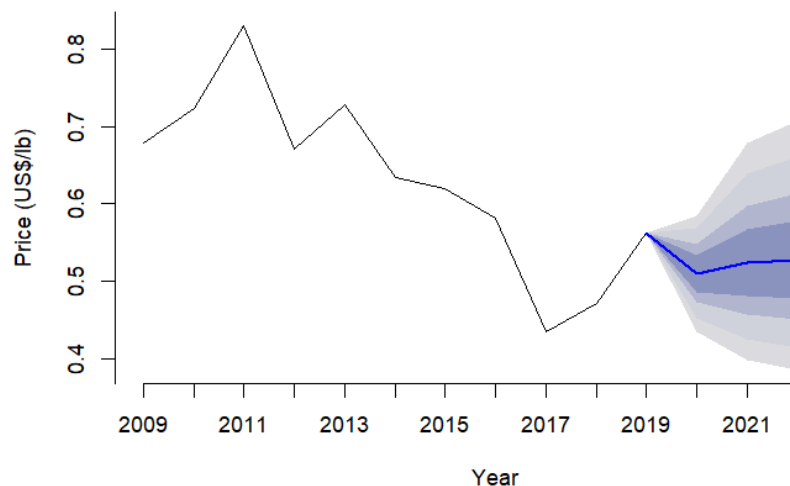


Figure 7.13: Pollock head and gut wholesale price projections and confidence bounds

Table 7.15: Projected mean, probability bounds of pollock head and gut wholesale prices (US\$/lb)

| | Lower | | | | | | Upper | | | |
|------|-------|------|------|------|------|--------|-------|------|------|------|
| | 5% | 10% | 20% | 30% | mean | Median | 70% | 80% | 90% | 95% |
| 2020 | 0.43 | 0.45 | 0.47 | 0.49 | 0.51 | 0.51 | 0.53 | 0.55 | 0.57 | 0.58 |
| 2021 | 0.40 | 0.42 | 0.46 | 0.48 | 0.52 | 0.52 | 0.57 | 0.60 | 0.64 | 0.68 |
| 2022 | 0.38 | 0.41 | 0.45 | 0.48 | 0.53 | 0.53 | 0.58 | 0.61 | 0.66 | 0.71 |

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

| Pollock head and gut wholesale return volatility projections | | | | |
|--|------|-------|-------|----------|
| Hist. | Avg. | 2021 | 2022 | Long-run |
| 14.95 | | 14.47 | 15.00 | 14.95 |

Pollock H&G First-Wholesale Prices

Pollock head and gut production decreased 25% in 2019 and prices increased 19% to \$0.562/lb. The price increase was consistent with the projected increase from last year and was above last year's estimated 95% confidence bounds of \$0.413/lb to \$0.542/lb with a median of \$0.481/lb. The projected first-wholesale pollock H&G price in 2020 has a median estimate of \$0.510/lb and 95% confidence bounds of \$0.420/lb and \$0.599/lb (Figure 7.13). These estimates imply that prices in 2020 will likely decrease with potential for stable or a slight increase in prices falling within the projected range. Production data through Oct. 3, 2019 indicate that 2020 H&G production is down 17% year-over-year. Export data on which projections are based do not have a distinct H&G code which contributes to the considerable volatility in H&G price projections. Because of the substantial volatility a range of potential increases or decreases are plausible in future years.

7.5.2 Pacific Cod First-Wholesale Prices

Pacific cod is mainly produced into the H&G product form, though fillets constitute a significant portion of the output, particularly for shoreside processors (Tables 16 and 32).

Pacific Cod H&G First-Wholesale Prices

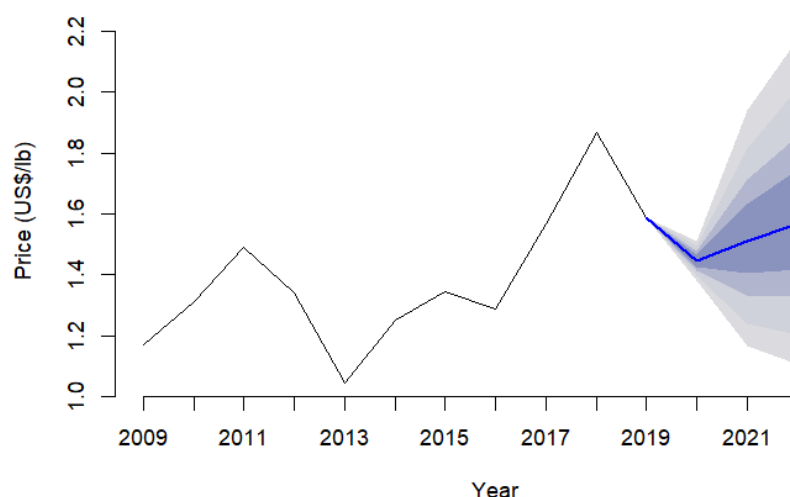


Figure 7.14: Pacific cod head and gut wholesale price projections and confidence bounds

Table 7.16: Projected mean, probability bounds of pacific cod head and gut wholesale prices (US\$/lb)

| | Lower | | | | mean | Median | Upper | | | |
|------|-------|------|------|------|------|--------|-------|------|------|------|
| | 5% | 10% | 20% | 30% | | | 70% | 80% | 90% | 95% |
| 2020 | 1.38 | 1.40 | 1.41 | 1.42 | 1.44 | 1.44 | 1.47 | 1.48 | 1.50 | 1.51 |
| 2021 | 1.17 | 1.24 | 1.33 | 1.40 | 1.51 | 1.51 | 1.63 | 1.71 | 1.81 | 1.94 |
| 2022 | 1.11 | 1.21 | 1.33 | 1.42 | 1.57 | 1.57 | 1.75 | 1.86 | 2.01 | 2.17 |

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

| Pacific cod head and gut wholesale return volatility projections | | | | |
|--|------|-------|-------|----------|
| Hist. | Avg. | 2021 | 2022 | Long-run |
| 16.38 | | 15.99 | 16.13 | 16.23 |

Production of Pacific cod H&G decreased 19.5% in 2019 and realized prices decreased 15% to \$1.587/lb. Price projections from last year's report indicated an decrease as well and had 95% confidence bounds of \$1.651/lb to \$1.771/lb with a median of \$1.703/lb, placing the realized price below the projected range. The 2020 price projections 2020 H&G prices have an estimated median price of \$1.445/lb and 95% confidence bounds ranging from \$1.368/lb to \$1.523/lb. (Figure 7.14). These estimates indicate that a price decrease in 2020 is likely. Production data through Oct. 3, 2020 show a 21% reduction in the year-over-year production of H&G. Projections of cod H&G prices for 2021 and beyond indicate that based on historical patterns prices may rebound, reverting back towards 2019 levels, but also confidence bounds show a wide range of potential future prices. Volatility projections indicate that future volatility may decrease.

Pacific Cod Fillet First-Wholesale Prices

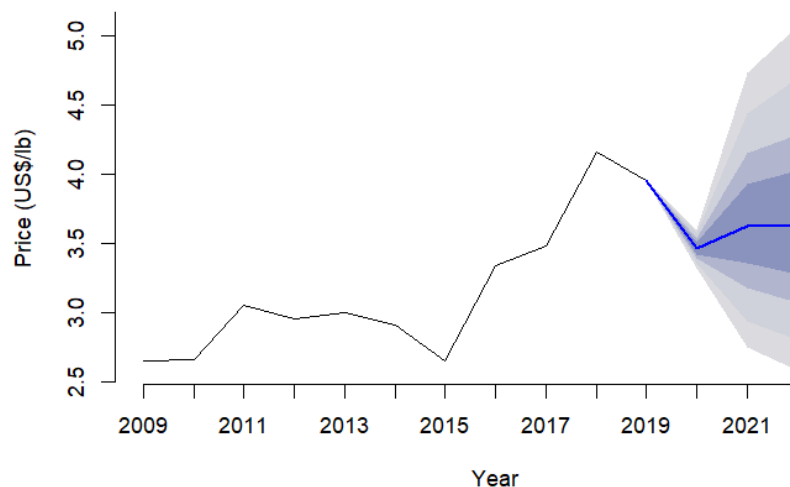


Figure 7.15: Pacific cod fillet wholesale price projections and confidence bounds

Table 7.17: Projected mean, probability bounds of pacific cod fillet wholesale prices (US\$/lb)

| | Lower | | | | | Upper | | | | |
|------|-------|------|------|------|------|--------|------|------|------|------|
| | 5% | 10% | 20% | 30% | mean | Median | 70% | 80% | 90% | 95% |
| 2020 | 3.33 | 3.36 | 3.39 | 3.42 | 3.46 | 3.46 | 3.51 | 3.53 | 3.57 | 3.60 |
| 2021 | 2.76 | 2.94 | 3.18 | 3.36 | 3.63 | 3.63 | 3.93 | 4.16 | 4.44 | 4.73 |
| 2022 | 2.58 | 2.80 | 3.07 | 3.28 | 3.63 | 3.64 | 4.03 | 4.29 | 4.70 | 5.07 |

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

| Pacific cod fillet wholesale return volatility projections | | | | |
|--|------|-------|-------|----------|
| Hist. | Avg. | 2021 | 2022 | Long-run |
| 17.15 | | 17.36 | 18.16 | 20.51 |

Production of Pacific cod fillets decreased 16% in 2019 as prices fell 5% to \$3.961/lb. Price projections from last year's report indicated an decrease as well and had 95% confidence bounds of \$3.901/lb to \$4.333/lb with a median of \$4.188/lb, placing the realized price within the projected range. The current projections for 2020 first-wholesale cod fillets have 95% confidence bounds of \$3.298/lb and \$3.627/lb with a median of \$3.464/lb (Figure 7.15). These estimates indicate that a decrease in 2020 cod fillet price is likely. Production data through Oct. 3, 2020 show a 9% reduction in the year-over-year production of fillets. Fillet price projections for 2021 and beyond indicate future prices may rebound. Confidence bounds show a wide range of potential future prices reflecting the historical and projected volatility in the cod fillet price. Volatility projections indicate that future volatility may increase.

7.5.3 Sablefish H&G First-Wholesale Prices

Sablefish is mostly produced into the head-and-gut product form at the first-wholesale level, comprising 93% of the value from sablefish products. Sablefish H&G production in 2019 increased

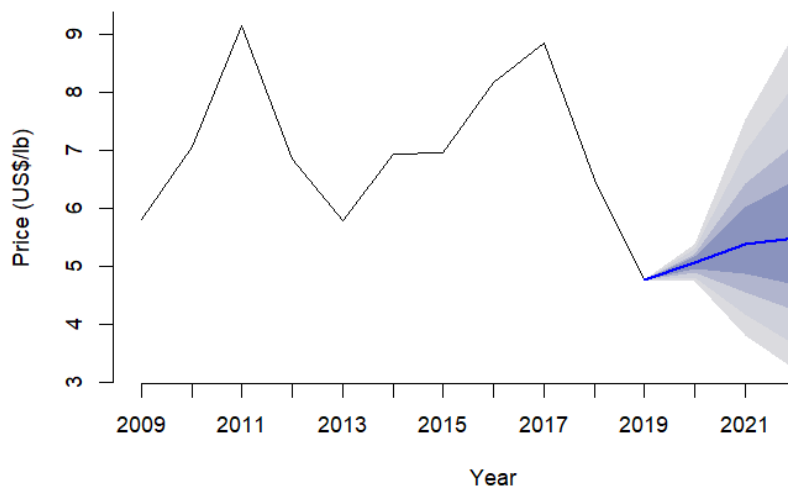


Figure 7.16: Sablefish head and gut ex-vessel price projections and confidence bounds

Table 7.18: Projected mean, probability bounds of sablefish head and gut ex-vessel prices (US\$/lb)

| | Lower | | | | | | Upper | | | |
|------|-------|------|------|------|------|--------|-------|------|------|------|
| | 5% | 10% | 20% | 30% | mean | Median | 70% | 80% | 90% | 95% |
| 2020 | 4.74 | 4.81 | 4.89 | 4.95 | 5.05 | 5.05 | 5.15 | 5.22 | 5.30 | 5.37 |
| 2021 | 3.80 | 4.16 | 4.54 | 4.87 | 5.39 | 5.40 | 6.01 | 6.42 | 6.97 | 7.53 |
| 2022 | 3.20 | 3.63 | 4.23 | 4.68 | 5.48 | 5.52 | 6.49 | 7.13 | 8.16 | 9.06 |

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

| Sablefish head and gut ex-vessel return volatility projections | | | | |
|--|-------|-------|----------|--|
| Hist. Avg. | 2021 | 2022 | Long-run | |
| 18.60 | 21.52 | 22.74 | 16.47 | |

2.3%. The realized price of sablefish H&G in 2019 decreased 26% to \$4.765/lb. Price projections from last year's report indicated a decrease as well and had 95% confidence bounds of \$5.721/lb to \$6.560/lb with a median of \$6.158/lb, placing the realized price below the projected range. This year's price projections for the 2020 first-wholesale sablefish H&G price have 95% confidence bounds of \$4.680/lb to \$5.424/lb with a median of \$5.052/lb (Figure 7.16). These estimates imply that a price increase in 2020 is somewhat likely, however the 2019 price falls within the projected bounds indicating the possibility that prices may remain stable. Production data through Oct. 3, 2020 show 5% decrease in the year-over-year production of sablefish H&G. Projections of sablefish H&G prices for 2021 and beyond indicate that based on historical patterns prices may trend back up reverting back towards recent levels, but also confidence bounds show a wide range of potential future prices. Volatility projections indicate an increase in future volatility.

7.5.4 Atka Mackerel H&G First-Wholesale Prices

Greater than 90% of the Alaska caught Atka mackerel production volume is processed as head-and-gut. The Atka mackerel first-wholesale H&G production decreased 9.5% in 2019 and price decreased

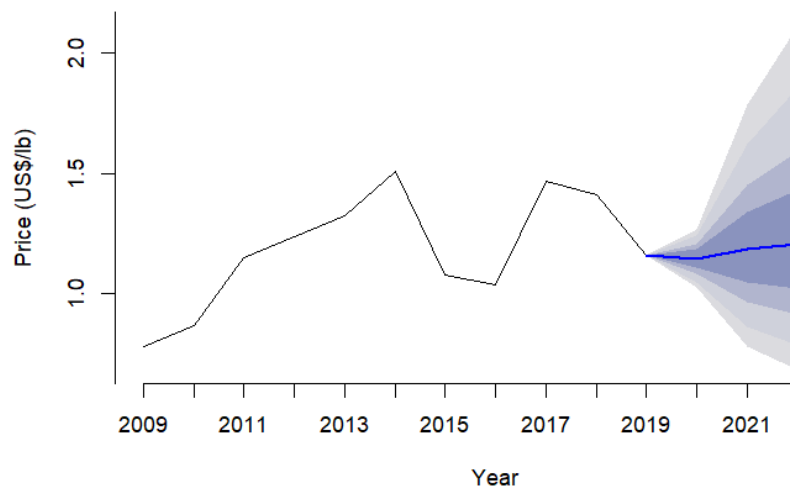


Figure 7.17: Atka mackerel head and gut wholesale price projections and confidence bounds

Table 7.19: Projected mean, probability bounds of atka mackerel head and gut wholesale prices (US\$/lb)

| | Lower | | | | | | Upper | | | |
|------|-------|------|------|------|------|--------|-------|------|------|------|
| | 5% | 10% | 20% | 30% | mean | Median | 70% | 80% | 90% | 95% |
| 2020 | 1.03 | 1.05 | 1.08 | 1.11 | 1.14 | 1.15 | 1.18 | 1.21 | 1.24 | 1.27 |
| 2021 | 0.78 | 0.87 | 0.97 | 1.05 | 1.19 | 1.19 | 1.34 | 1.45 | 1.62 | 1.78 |
| 2022 | 0.68 | 0.79 | 0.92 | 1.02 | 1.21 | 1.21 | 1.43 | 1.59 | 1.86 | 2.11 |

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

| Atka mackerel head and gut wholesale return volatility projections | | | | |
|--|------|-------|-------|----------|
| Hist. | Avg. | 2021 | 2022 | Long-run |
| 25.79 | | 25.86 | 25.79 | 25.79 |

18% to \$1.161/lb. Price projections from last year's report had 95% confidence bounds of \$1.196/lb and \$1.456/lb with a median of \$1.324/lb, placing the realized price below the projected range. Current projections for the 2020 Atka mackerel H&G price have 95% confidence bounds of \$1.003/lb to \$1.291/lb with a median of \$1.146/lb (Figure 7.16). These estimates imply that the 2020 Atka mackerel price will likely remain stable, however marginal increases and decreases are within the projected range. Production data through Oct. 3, 2020 show a 6% increase in the year-over-year production of H&G. Atka mackerel H&G price projections for 2021 and beyond based on historical trends indicate that expected prices do not exhibit a trend or potential mean reversion. Because of the substantial volatility a range of potential increases or decreases are plausible in the future. Volatility projections indicate future volatility levels will remain stable.

7.5.5 Flatfish First-Wholesale Prices

The two largest flatfish species in terms of market value and volume are yellowfin and rock sole in the BSAI. Arrowtooth flounder is the predominant species caught in the GOA and in also caught in

substantial quantities in the BSAI. The market shares for other flatfish fisheries are comparatively smaller. Flatfish are primarily processed into the head-and-gut product form.

Yellowfin Sole H&G First-Wholesale Prices

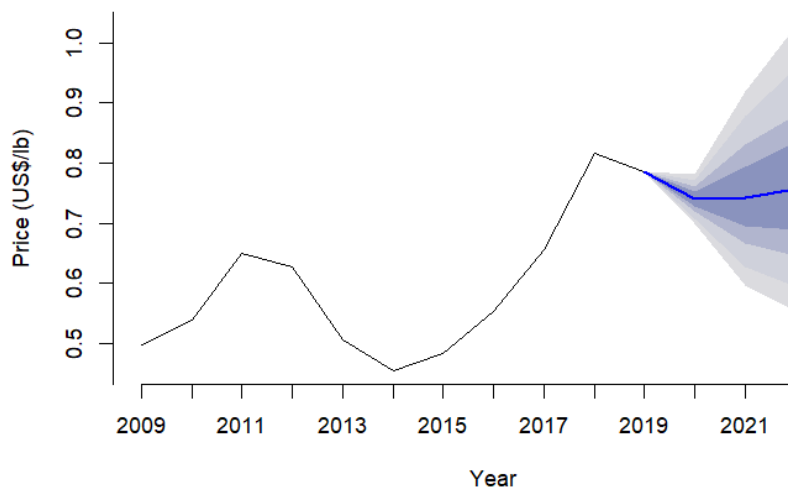


Figure 7.18: Yellowfin (BSAI) head and gut wholesale price projections and confidence bounds

Table 7.20: Projected mean, probability bounds of yellowfin (BSAI) head and gut wholesale prices (US\$/lb)

| | Lower | | | | mean | Median | Upper | | | |
|------|-------|------|------|------|------|--------|-------|------|------|------|
| | 5% | 10% | 20% | 30% | | | 70% | 80% | 90% | 95% |
| 2020 | 0.70 | 0.71 | 0.72 | 0.73 | 0.74 | 0.74 | 0.75 | 0.76 | 0.77 | 0.78 |
| 2021 | 0.60 | 0.63 | 0.67 | 0.70 | 0.74 | 0.74 | 0.79 | 0.83 | 0.88 | 0.92 |
| 2022 | 0.55 | 0.59 | 0.65 | 0.69 | 0.76 | 0.76 | 0.83 | 0.88 | 0.96 | 1.03 |

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

| Yellowfin (BSAI) head and gut wholesale return volatility projections | | | | |
|---|-------|-------|----------|--|
| Hist. Avg. | 2021 | 2022 | Long-run | |
| 13.71 | 13.70 | 13.63 | 13.66 | |

The yellowfin sole first-wholesale H&G production increased 1% in 2019 and the first-wholesale price decreased 4% to \$0.786/lb. This price was consistent with the price projection from last year's report that estimated that prices would decrease with 95% confidence bounds of \$0.707/lb and \$0.828/lb and a median of \$0.761/lb. This year's projection for 2020 yellowfin sole H&G prices estimate a median price of \$0.740/lb with 95% confidence bounds of \$0.692/lb and \$0.788/lb (Figure 7.18). These estimates imply that a price decrease in 2020 is likely, however the 2019 price falls within the projected bounds indicating the possibility that prices may remain stable. Production data through Oct. 3, 2020 show 3% increase in the year-over-year production of H&G. Yellowfin sole H&G price projections for 2021 and beyond based on historical trends indicate that expected prices do not exhibit a significant trend or potential mean reversion. Because of the substantial volatility a range

of potential increases or decreases are plausible. Volatility projections indicate a decrease in future volatility.

Rock Sole H&G First-Wholesale Prices

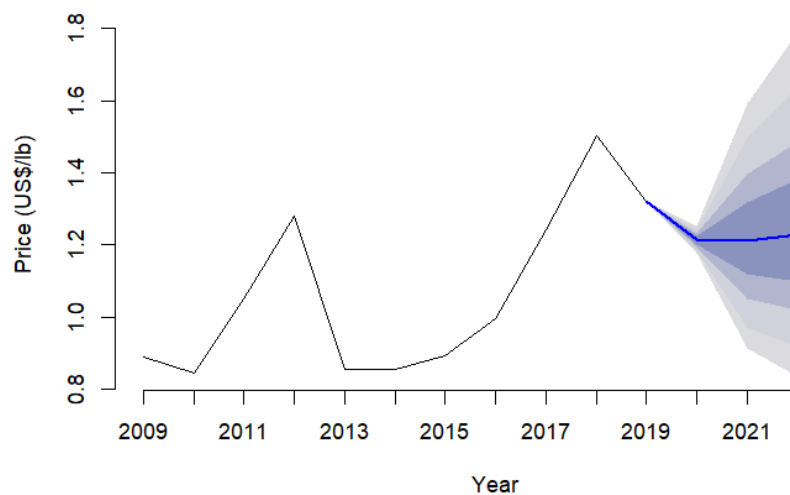


Figure 7.19: Rock sole (BSAI) head and gut with roe wholesale price projections and confidence bounds

Table 7.21: Projected mean, probability bounds of rock sole (BSAI) head and gut with roe wholesale prices (US\$/lb)

| | Lower | | | | mean | Median | Upper | | | |
|------|-------|------|------|------|------|--------|-------|------|------|------|
| | 5% | 10% | 20% | 30% | | | 70% | 80% | 90% | 95% |
| 2020 | 1.18 | 1.18 | 1.19 | 1.20 | 1.21 | 1.21 | 1.23 | 1.23 | 1.24 | 1.25 |
| 2021 | 0.91 | 0.97 | 1.05 | 1.12 | 1.21 | 1.21 | 1.32 | 1.40 | 1.49 | 1.59 |
| 2022 | 0.83 | 0.92 | 1.02 | 1.10 | 1.23 | 1.23 | 1.38 | 1.48 | 1.64 | 1.79 |

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

| Rock sole (BSAI) head and gut with roe wholesale return volatility projections | | | | |
|--|-------|-------|----------|--|
| Hist. Avg. | 2021 | 2022 | Long-run | |
| 18.29 | 18.28 | 18.28 | 18.26 | |

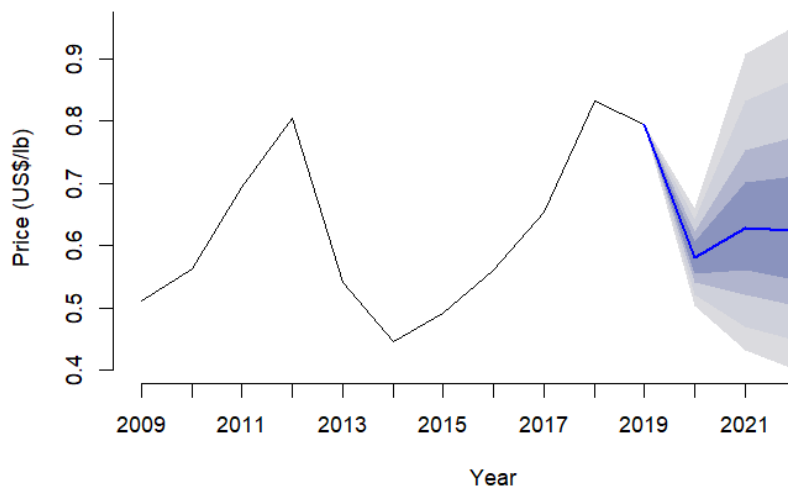


Figure 7.20: Rock sole (BSAI) head and gut wholesale price projections and confidence bounds

Table 7.22: Projected mean, probability bounds of rock sole (BSAI) head and gut wholesale prices (US\$/lb)

| | Lower | | | | | | Upper | | | |
|------|-------|------|------|------|------|--------|-------|------|------|------|
| | 5% | 10% | 20% | 30% | mean | Median | 70% | 80% | 90% | 95% |
| 2020 | 0.50 | 0.52 | 0.54 | 0.56 | 0.58 | 0.58 | 0.61 | 0.62 | 0.64 | 0.66 |
| 2021 | 0.43 | 0.47 | 0.52 | 0.56 | 0.63 | 0.63 | 0.70 | 0.75 | 0.83 | 0.91 |
| 2022 | 0.40 | 0.45 | 0.50 | 0.55 | 0.62 | 0.62 | 0.71 | 0.77 | 0.87 | 0.95 |

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

| Rock sole (BSAI) head and gut wholesale return volatility projections | | | | |
|---|------|-------|-------|----------|
| Hist. | Avg. | 2021 | 2022 | Long-run |
| 21.97 | | 22.45 | 22.39 | 22.73 |

The majority of rock sole is processed into two product forms; H&G with roe is a higher priced product with slightly different price dynamics than the other product form H&G (without roe) (Figures 7.19 and 7.20).

The first-wholesale production of rock sole H&G with roe decreased 32% in 2019 and the price decreased 12% to \$1.321/lb. Price projections from last year's report indicated a decrease which had 95% confidence bounds of \$1.225/lb and \$1.333/lb with a median of \$1.283/lb, placing the realized price within the projected range. This year's projection for the 2020 rock sole H&G with roe price has a median of \$1.214/lb with 95% confidence bounds of \$1.169/lb and \$1.258/lb (Figure 7.19) indicating that it is likely that prices will decrease. Production data through Oct. 3, 2020 show a 99% increase in the year-over-year production of H&G with roe. The price projection for 2021 and beyond does not exhibit a significant trend. Because of the substantial volatility a range of potential increases or decreases are plausible in future years.

The first-wholesale production of rock sole H&G (without roe) decreased 10% in 2019 and the price increased 4% to \$0.795/lb. Price projections from last year's report indicated a decrease which had 95% confidence bounds of \$0.480/lb and \$0.619/lb with a median of \$0.544/lb, placing the

realized price above the projected range. This year's projections estimate the 2020 rock sole H&G (without roe) median price will decrease with a median estimate of \$0.580/lb with confidence bounds ranging from \$0.487/lb to \$0.674/lb (Figure 7.20). Production data through Oct. 3, 2020 show a 8.6% decrease in the year-over-year production of H&G for 2020. The price projection for 2021 and beyond indicate that prices may rebound in 2021.

Arrowtooth Flounder H&G First-Wholesale Prices

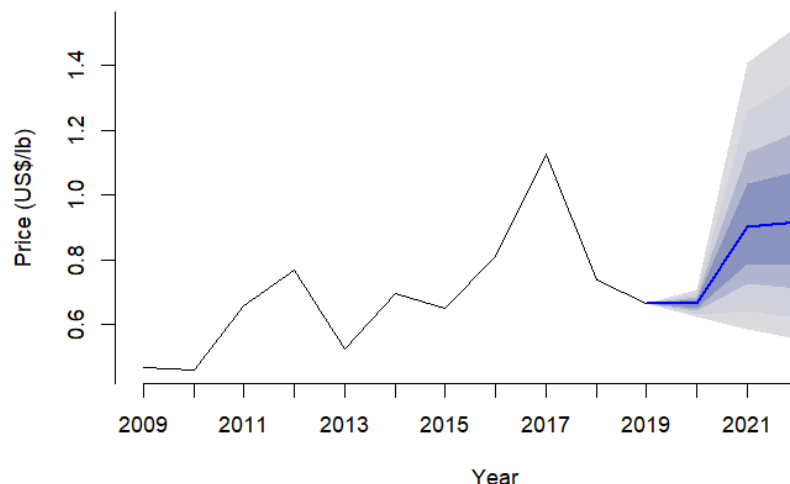


Figure 7.21: Arrowtooth head and gut wholesale price projections and confidence bounds

Table 7.23: Projected mean, probability bounds of arrowtooth head and gut wholesale prices (US\$/lb)

| | Lower | | | | mean | Median | Upper | | | |
|------|-------|------|------|------|------|--------|-------|------|------|------|
| | 5% | 10% | 20% | 30% | | | 70% | 80% | 90% | 95% |
| 2020 | 0.62 | 0.63 | 0.65 | 0.65 | 0.67 | 0.67 | 0.68 | 0.69 | 0.70 | 0.71 |
| 2021 | 0.58 | 0.65 | 0.73 | 0.79 | 0.90 | 0.90 | 1.03 | 1.13 | 1.26 | 1.41 |
| 2022 | 0.55 | 0.62 | 0.71 | 0.79 | 0.92 | 0.92 | 1.07 | 1.19 | 1.35 | 1.52 |

At the 'Lower' and 'Upper' bounds x% of the simulated prices were less. The confidence bounds are the regions between the 'Upper' and 'Lower' bounds.

| Arrowtooth head and gut wholesale return volatility projections | | | | |
|---|-------|-------|----------|--|
| Hist. Avg. | 2021 | 2022 | Long-run | |
| 23.15 | 28.37 | 31.92 | 18.80 | |

Arrowtooth flounder are primarily produced into the head-and-gut product form. The first-wholesale production of arrowtooth H&G increased 51% in 2019 and the price decreased 10% to \$0.667/lb. This value was within last year's estimated 95% confidence bounds of \$0.613/lb and \$0.854/lb, and a median \$0.746/lb. This year's price projections for the 2020 arrowtooth H&G price have 95% confidence bounds of \$0.616/lb and \$0.715/lb with median of \$0.666/lb (Figure 7.21). These estimates indicate that prices will likely remain stable with potential for a marginal price increase or decrease falling within the projected range. Production data through Oct. 3, 2020 show 8.3% increase in the year-over-year production of H&G for 2020. Projections for 2021 and beyond indicate

an increase with a return to the pre-2020 trend. Because of the substantial volatility a range of potential increases or decreases are plausible. Export data aggregate arrowtooth into a general flatfish category which can reduce the accuracy of the model depending on how well year-over-year changes in the arrowtooth price match changes for this general flatfish group.

7.5.6 Rockfish H&G First-Wholesale Prices

Rockfish fisheries have historically been aggregated into a species complex in this report. Species within the complex include northern rockfish, Pacific Ocean perch, roughey rockfish, shortraker rockfish, dusky rockfish and thornyhead rockfish. The only rockfish species defined in the export data is Pacific Ocean perch (POP) which is used to nowcast current first-wholesale prices for the aggregate rockfish complex. Price projections are included here to provide the best available estimates of prices given the information available. Rockfish are primarily produced into the head-and-gut product form.

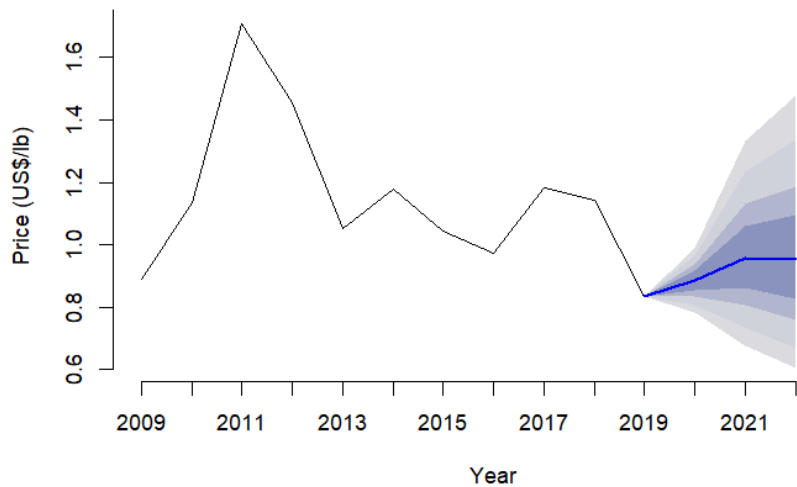


Figure 7.22: Rockfish head and gut wholesale price projections and confidence bounds

Table 7.24: Projected mean, probability bounds of rockfish head and gut wholesale prices (US\$/lb)

| | Lower | | | | | Upper | | | | |
|------|-------|------|------|------|------|--------|------|------|------|------|
| | 5% | 10% | 20% | 30% | mean | Median | 70% | 80% | 90% | 95% |
| 2020 | 0.78 | 0.81 | 0.83 | 0.85 | 0.89 | 0.89 | 0.92 | 0.94 | 0.96 | 0.99 |
| 2021 | 0.68 | 0.73 | 0.81 | 0.86 | 0.96 | 0.95 | 1.06 | 1.13 | 1.23 | 1.33 |
| 2022 | 0.60 | 0.67 | 0.76 | 0.83 | 0.95 | 0.95 | 1.09 | 1.19 | 1.34 | 1.48 |

At the ‘Lower’ and ‘Upper’ bounds x% of the simulated prices were less. The confidence bounds are the regions between the ‘Upper’ and ‘Lower’ bounds.

| Rockfish head and gut wholesale return volatility projections | | | |
|---|-------|-------|----------|
| Hist. Avg. | 2021 | 2022 | Long-run |
| 19.50 | 20.69 | 17.06 | 19.48 |

First-wholesale rockfish H&G prices decreased 27% to \$0.0835/lb in 2019 (Figure 7.22). This value was below the last year’s 95% confidence bounds of \$0.942/lb and \$1.071/lb. Projections for the

2020 price have 95% confidence bounds of \$0.765/lb and \$1.008/lb with a median of \$0.887/lb indicating that 2020 prices are somewhat likely to increase although price decreases are within the projected range.

Bibliography

Hamilton, J.D. 1994. *Time Series Analysis*. Princeton, NJ: Princeton University Press.

Hyndman, R.J., & Athanasopoulos, G. 2013. *Forecasting: principles and practice*.
<http://otexts.org/fpp/>. Accessed on Feb. 2014.

8. WHOLESALE MARKET PROFILES FOR ALASKA GROUND FISH

The Alaska Groundfish Wholesale Market Profiles was prepared for Alaska Fisheries Science Center (AFSC) by McDowell Group in collaboration with AFSC and Pacific States Marine Fisheries Commission. This section is an extract from the full Profiles report.

Note: AKFIN and COAR data used in the Profiles report may not match other figures in the Economic SAFE exactly because different versions of the data sets were used independently in the analysis.



November 2018

McDowell Group Anchorage Office
1400 W. Benson Blvd., Suite 510
Anchorage, Alaska 99503
McDowell Group Juneau Office
9360 Glacier Highway, Suite 201
Juneau, Alaska 99801
Website: www.mcdowellgroup.net

This section of the *Economic Status Report of the Groundfish Fisheries off Alaska, 2019* is extracted from the content in the larger and more comprehensive Alaska Groundfish Wholesale Market Profiles (<https://repository.library.noaa.gov/view/noaa/25242>). The analysis was conducted during the winter of 2018 and spring of 2019, based primarily on 2017 harvest and market data. For data sourced from NMFS and AKFIN the reader should refer to the Economic Status Report of the Groundfish Fisheries Off Alaska, 2017. The following section of the report covers the primary wholesale products for the high valued FMP groundfish species Alaska pollock, Pacific cod, sablefish, yellowfin sole, rock sole, Atka mackerel, Pacific Ocean perch, and arrowtooth. The full Alaska Groundfish Wholesale Market Profiles report contains more extensive analysis and covers additional species and products not contained here, including Pacific halibut, king crab and snow crab.

The profiles provide an overview of the wholesale markets related to primary Alaska groundfish species and/or products. Most of the wholesale data and analysis outside of this section pertains to first wholesale markets. This section and the Market Profiles report provide a broader analysis on wholesale markets from production to consumers. Each profile in this series contains detailed information about key markets and competing supply for individual species or products, while this chapter contextualizes Alaska groundfish production versus the rest of the world. Each profile characterizes wholesale production volume and value, product mix, supply chain, competing supply, and key markets. Values and prices throughout this section are nominal unless stated otherwise.

Data Sources:

In general: Alaska groundfish and crab production were sourced from the NMFS Alaska Region At-sea and Shoreside Production Report which was combined with prices derived from the ADF&G Commercial Operators Annual Reports (COAR) to produce data on value (Data provided by the Alaska Fisheries Information Network (AKFIN)). Alaska groundfish harvest data for recent years are sourced from NMFS Alaska Region Blend and Catch-accounting System estimates and crab harvest from ADFG/CFEC Fish Tickets (Data provided by the Alaska Fisheries Information Network (AKFIN)). Historical harvest data for U.S. fisheries were sourced from NMFS Office of Science and Technology, Annual Commercial Fisheries Statistics Database. Global harvest data were sourced from FAO Fisheries and Aquaculture Department. Fisheries statistics and information. U.S. export and import trade data were sourced from NMFS Office of Science and Technology, Foreign Fishery Trade Data. Global export and import trade data were sourced from IHS Markit. Global Trade Atlas: International Import and Export Commodity Trade Data. Exchange rate data were sourced from Board of Governors of the Federal Reserve System (US), FRED, Federal Reserve Bank of St. Louis. For details on specific tables, figures or values see information in the notes, sources or contact authors.

8.1. Global Groundfish Production & Key Markets

8.1.1 Global Whitefish and Other Marine Fish Production

Alaska's groundfish fisheries are of particular global importance thanks to their production of whitefish; Alaska produces approximately 21 percent of global marine wild-harvest whitefish annually. Whitefish generally refers to non-oily species like cod, pollock, haddock, hake, whiting, and benthic flatfish species, such as sole, plaice, flounder, and halibut (Table 8.1). These species - primarily caught in wild fisheries - also compete in global seafood markets with notable aquaculture species such as tilapia and pangasius. Though there are different perceptions of quality and price premiums

within this range of species, they are all competitors and may be substituted depending on price and availability.

Table 8.1: Global whitefish production, in metric tons, 2016

| Species | 2016 Harvest Volume (mt) | Alaska Pct. Of Global Production (2016) | Primary Uses |
|---|-----------------------------|--|------------------------|
| Pollock | 3,476,149 | 44% | Meat, Surimi, Meal/Oil |
| Hakes, Hoki, Lings, and Whiting | 2,813,434 | 0% | Meat, Surimi, Meal/Oil |
| Cod ¹ and Haddock | 2,106,327 | 15% | Meat |
| Sole, Flounder, and Plaice | 715,493 | 33% | Meat |
| Saithe | 298,086 | 0% | Meat |
| Other Whitefish (Whitefish and Cod Varieties) | 84,085 | 0% | Meat |
| Halibuts and Turbots | 212,433 | 5% | Meat |
| Total Wild Whitefish (Capture Fish- eries) | 9,706,007 | 21% | |
| Tilapias and Cichlids (Farmed and Cap- ture) | 6,685,921 | 0% | Meat |
| Pangasius (Farmed) | 1,757,843 | 0% | Meat |
| Total - Tilapias and Pangasius | 8,443,764 | - | |
| Total Wild Whitefish, Tilapia, and Pangasius | 18,149,771 | 11% | |

Notes: Global harvest/production data for 2017 is not yet available.

1. Pacific and Atlantic cod only.

Source: FAO, compiled by McDowell Group.

Globally, 9.7 million metric tons of whitefish were harvested in 2016, with Alaska pollock being the largest component of this group at 3.5 million metric tons (Table 8.1). Following Alaska pollock, 2.8 million metric tons of hakes, hoki, lings, and whittings were harvested. While the majority of production of these high-volume species is used for meat, surimi production is also a critically important product. Roe, fish meal, fish oil, and other ancillary products are also produced in significant volumes from these wild marine fish species.

After pollock and hakes/hoki/lings/whiting, the next most important whitefish species group is cod/haddock, with a total global harvest of 2.1 million metric tons. The vast majority of these fish are used to produce fillets that could represent a substitute for key Alaska groundfish species on a general level, especially in European and North American markets. While consumers generally will not substitute imported whitefish species for less expensive and traditionally palatable domestic species, frozen seafood manufacturers increasingly develop products and packaging that allows them to use multiple species for the same product, permitting them greater sourcing options and the ability to lower costs. Flatfish are another key whitefish species and Alaska produces an estimated 33% of the global supply. Most Alaska flatfish exports are reporecessed as fillets in China. Important markets for flatfish include Japan, U.S., and Europe.

In addition to whitefish, Alaska’s groundfish fisheries produce significant volumes of rockfish, Pacific Ocean perch, sablefish, and Atka mackerel (Table 8.2). Though these species also have white flesh, they are treated separately due to their oil content and where they compete within the overall seafood hierarchy; rockfish would most closely compete with “snappers” while sablefish compete directly with the ultra-premium Antarctic and Patagonia toothfish. Alaska harvested more than 18 percent of the world’s snappers, rockfish, sablefish, and Antarctic/Patagonia toothfish in 2016.

Table 8.2: Global production of snappers/rockfish and sablefish/toothfish, in metric tons, 2016

| Species | 2016 Harvest Volume (mt) | Alaska Pct. Of Global Production (2016) | Primary Uses |
|--|-----------------------------|--|-----------------|
| Snappers and Rockfish (Includes Pacific Ocean Perch) | 360,757 | 18% | Meat |
| Sablefish and Antarctic/Patagonia Toothfish | 46,886 | 21% | Meat |
| Total Wild Snappers, Rockfish, and Toothfish | 119,965 | 20% | |

Source: FAO, compiled by McDowell Group.

8.1.2 Alaska’s Position in the Global Whitefish Market

Alaska produces a fraction of global whitefish production and is thus highly impacted by global macroeconomic trends, trade policies, and competing whitefish supply. In terms of supply, Russia (cod/pollock/flatfish), China (tilapia), Norway (cod), Japan (pollock/cod), New Zealand (hoki), and Vietnam (pangasius) are the biggest competitors for Alaska’s high-volume whitefish species. Other species like POP and Atka mackerel have both defined export markets and limited competition where Alaska is the primary export supplier and generally accounts for a larger percent of global supply. As a result, species substitution is less common in markets for these species with price driven by local demand dynamics, currency fluctuations, and Alaska harvest volume. Once almost exclusively dependent on the Japanese market, sablefish markets have expanded around the world, and is now well-known and sought-after by chefs and discerning consumers.

8.1.3 Alaska Groundfish Production and Market Summary

In 2016, 2.2 million mt of groundfish were harvested off Alaska, with roughly two-thirds of this volume made up of pollock. Table 8.3 summarizes production volume, value, key markets, and the percentage of global production for Alaska groundfish species and products. Alaska accounts for a significant share of global whitefish production. The U.S. domestic market has grown in importance for Alaska’s groundfish fisheries, with Europe, Japan, China, and South Korea remaining key export markets for Alaska groundfish.

Export markets buy about 69 percent of Alaska’s total groundfish production, and an even larger percentage of surimi, roe, fish meal, and other groundfish products. China is the largest wholesale market for groundfish, accounting for 24 percent of estimated sales volume in 2017, with the largest single export product being flatfish. However, the vast majority of Alaska groundfish exported to China is re-exported to Europe, the U.S., and Japan. Japan is the second largest overall market for

Table 8.3: Alaska groundfish production and market summary, 2017.

| Species/Product | First Wholesale Value (\$millions) | Alaska Production (mt) | Key Markets |
|----------------------------------|---------------------------------------|---------------------------|-------------|
| Pollock – Fillets | \$480 | 173,000 | Europe |
| Pollock – Surimi | 595 | 207,000 | Japan/Korea |
| Pollock – Roe | 121 | 19,500 | Japan |
| Pollock – Other | 242 | 205,000 | China* |
| Pacific Cod | 510 | 137,000 | U.S. |
| Soles, Flounders, and Plaice | 230 | 135,000 | China* |
| Pacific Halibut | 117 | 9,300 | U.S. |
| Sablefish | 124 | 6,600 | Japan |
| Rockfish | 16 | 6,000 | U.S. |
| Pacific Ocean Perch ¹ | 64 | 26,000 | China* |
| Atka Mackerel | 128 | 42,200 | Japan |
| Other | 7 | 3,300 | Korea |

Notes: *Denotes re-export market. Alaska production figures are rounded.

1. While Pacific Ocean perch is also considered a rockfish, it is separated here due to its volume and that it is almost exclusively exported.

Source: AKFIN, ADF&G (COAR), and McDowell Group estimates.

Alaska groundfish due to the high volume of pollock roe, surimi, and cod which enter the market. Europe is particularly important for pollock fillets, surimi, and H/G Pacific cod production, though its importance has been somewhat diminished due to the recent abundance of its own whitefish harvests.

With an estimated 31 percent of Alaska groundfish production remaining in the U.S. – and a great deal more processed in China and re-exported back the U.S. – the U.S. is the largest consumer of Alaska groundfish. This position could remain steady or increase in coming years due to tariffs and technical trade barriers imposed on China and Vietnam, and the persistent strength of the U.S. dollar.

8.2. Alaska Pollock Product Market Profiles

Pollock or walleye pollock (*Gadus chalcogrammus*) is currently the largest single-species fishery in the world, with stocks concentrated in the North Pacific Ocean.¹ Pollock are commercially harvested by several countries, but U.S. (Alaska) and Russia are the largest producers by a wide margin. Pollock harvests in Alaska are significant on a national scale, accounting for 28 percent of total U.S. commercial fishery in 2017. Alaskan pollock accounted for 63 percent of Alaska’s groundfish production volume and 57 percent of first wholesale value in 2017 (Table 8.4). Alaskan pollock is processed into fillets, surimi, roe, head/gut (H&G), fish meal, fish oil, and other products. Europe, Japan, and U.S. are the primary consumer markets.

¹Note: Differentiating pollock by its place of origin, primarily Russia or Alaska, can be confusing due to the widespread use of the name Alaska pollock. To avoid confusion, we use the term “pollock” to refer to *Gadus chalcogrammus* from any country/place. References to pollock from a specific place are called out by name (e.g. “Alaskan pollock” or “Russian pollock”).

Table 8.4: Summary profile of Alaska pollock wholesale production and markets, 2017.

| Value and Volume | | Key Products | Fillets | Surimi | Roe | Meal | Other |
|-------------------------------------|---------|---|---------|--------|-----|-------|-------|
| First Wholesale Production (mt) | 604,426 | Pct. of Value | 33% | 41% | 8% | 7% | 11% |
| Pct. of Global Pollock Harvest | 45% | Key Markets | Japan | Europe | US | Korea | China |
| First Wholesale Value (\$millions) | \$1,438 | Pct. of 1 st Sales | 18% | 24% | 23% | 17% | 14% |
| Pct. Change in Value from 2013-2017 | 3.2% | YoY Change | 13% | -6% | -9% | -14% | 16% |
| Pct. of Alaska Groundfish Value | 57% | Competing Species: Russian pollock, hake, hoki, tropical surimi, & cod. | | | | | |

Alaskan Pollock Production

Wholesale Production and Value Summary

Pollock is one of the most valuable fisheries in Alaska, and even the world, due to its tremendous volume, production versatility, and white, mild-flavored flesh. Virtually all edible pollock products are frozen before being sold into wholesale markets. Alaska pollock harvests yielded 604,426 mt of processed product in 2017, with a first wholesale value of \$1.44 billion (Figure 8.1).

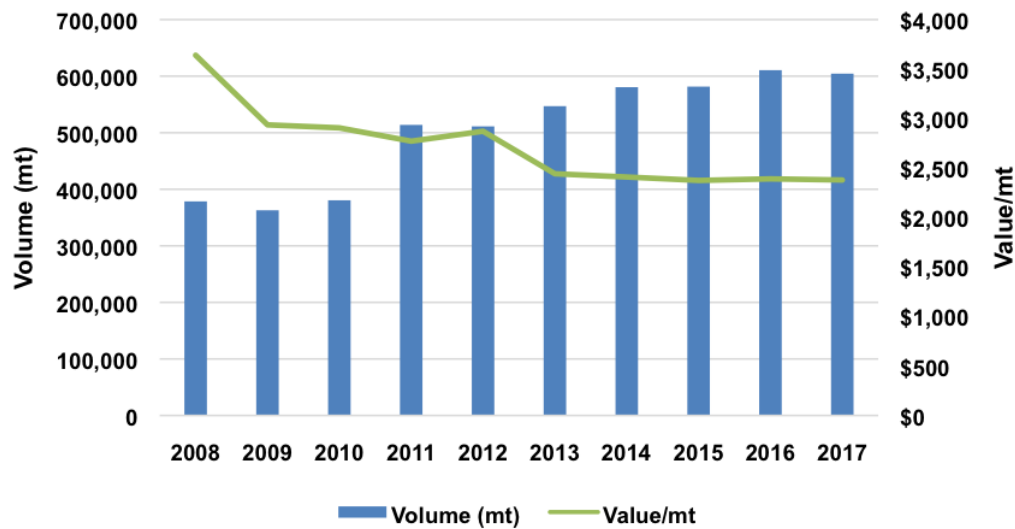


Figure 8.1: First wholesale volume and value for Alaska pollock, 2008-2017

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|--------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Value (\$millions) | \$1,378 | \$1,065 | \$1,106 | \$1,424 | \$1,468 | \$1,336 | \$1,399 | \$1,381 | \$1,460 | \$1,438 |

Source: AKFIN.

Alaskan pollock yield five primary product types: surimi, fillets, head/gut, roe, and fish meal/oil (Figure 8.2). In 2017 34 percent of that volume was surimi, followed by 29 percent fillet, 11 percent fish meal, 10 percent H&G, 3 percent roe, and the remainder in other products such as minced meat, fish oil, and organs.

Fillets typically provide the most revenue of any product type, though surimi topped the list in 2017. Together fillets and surimi accounted for 75 percent of Alaskan pollock's first wholesale value

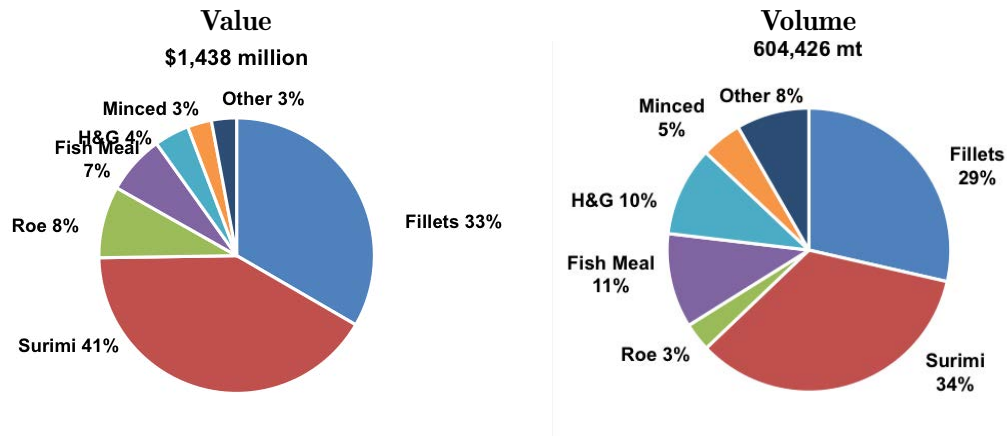


Figure 8.2: Alaska pollock first wholesale production volume and value, by product type, 2017
Notes: Percentages may not sum to 100 percent due to rounding.
Source: AKFIN.

in 2017. Although roe is only 3 percent of the production volume, it accounts for 8 percent of the fish's value and typically has the highest profit margin per unit of production. Fish meal/oil, minced meat, and other ancillary products account for 10 percent of the value, while head/gut production is 7 percent.

8.2.1 Alaskan Pollock Fillets

Pollock fillets function as a whitefish commodity for production of fish sticks/fingers, breaded fillets, and other value-added frozen whitefish fillet products. The majority of Alaskan pollock fillets are processed into frozen blocks of skinless or deep-skinned fillets. Pollock fillets are also produced at secondary processing facilities in China and Europe using imported H&G product. However, the fish must be thawed and re-frozen after processing, creating what is known as twice-frozen fillets. Once-frozen and twice-frozen Alaska pollock fillets compete in most of the same markets, but once-frozen product sells at a premium due to its higher quality and purity. Whether the fish is processed in Alaska or abroad, the primary product forms are skinless/boneless fillets (PBO) and deep-skinned fillets.

The two primary markets for fillets are the U.S. and Europe. Pollock fillets are primarily used in frozen, generic whitefish products, such as fish sticks/fingers, breaded fish fillets/patties, and other value-added frozen products. They are popular in quick service restaurants such as McDonald's and Long John Silver's. Frozen products made from pollock fillets are widely available in most European and North American grocery stores.

Supply Chain

When pollock is landed in Alaska, it enters one of the most complex supply chains of any groundfish species. Landed fish are first headed and gutted. Heads and other offal are turned into fish meal/oil or retained for other niche markets. Pollock meat is generally used to make either surimi or fillets. The majority of Alaska's once-frozen fillet production is exported to secondary processing companies in Europe, while a lesser amount goes to similar companies in the U.S. Most H&G production is

exported to China for twice-frozen fillet production. European and Brazilian processors import significant volumes of twice-frozen fillets from China and other countries. Secondary processors manufacture a range of breaded, coated, salted, and other products, mostly for high-volume retail, foodservice, or distribution companies.

Fillet Production Analysis

Fillets accounted for 29 percent of all Alaskan pollock production volume in 2017. Fillets were the second most valuable pollock product form in 2017 in terms of total revenue, after surimi. Fillet production declined slightly in 2017, due to an increasing emphasis on surimi (and despite increased harvest levels). The average wholesale value per mt decreased more or less steadily from 2013 to 2017, declining 13 percent over the period (Figure 8.3). This decline was, in part, influenced by competition from Russian pollock and other market factors. The price decline was greater for skinless/boneless fillets (-17 percent) compared to deep skin fillets (-8 percent) – helping explain deep skin’s relative increase in production over this period. Skinless/boneless fillet production decreased 9 percent between 2013 and 2017, while deep-skinned fillet production increased 14 percent to a record high.

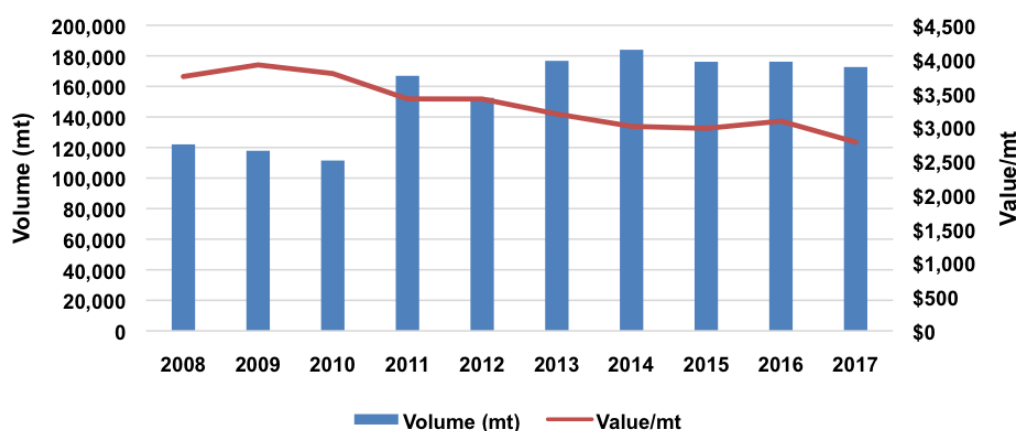


Figure 8.3: First wholesale volume and value for Alaska pollock fillets, 2008-2017

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Value (\$millions) | \$457 | \$462 | \$422 | \$570 | \$521 | \$564 | \$554 | \$525 | \$544 | \$480 |

Source: AKFIN.

Due mostly to lower fillet prices, the total value of Alaska pollock fillet production decreased 15 percent from 2013 through 2017. Export data for 2018 show a rebound in fillet prices to close to \$3,000 per mt. Similarly, trade press reports 2018 A-season prices for once-frozen PBO blocks at \$3,000/mt with contracts for 2019 A-season starting at \$3,500/mt.² While these prices represent a sharp increase, from a long-term perspective they can be seen as a return to the norm.

²<https://www.undercurrentnews.com/2018/11/19/only-way-is-up-for-pollock-prices-in-2019/>

Export markets are critically important to Alaska’s pollock industry. It is estimated that export markets buy nearly three-quarters of all Alaskan pollock fillet production (Table 8.5). Almost two-thirds of all Alaskan pollock fillets go directly to European markets. In addition, the majority of Alaskan pollock fillets exported to China are eventually re-exported to Europe. The pollock industry has avoided U.S. tariffs that would have a significant negative impact on them in the U.S.-China trade war. However, Chinese tariffs on U.S. products could inhibit growth in that market.

Table 8.5: Sales of Alaska pollock fillets to key markets (mt), 2013-2017

| Market | 2013 | 2014 | 2015 | 2016 | 2017 | Pct. of Total (5-yr. Avg.) |
|-------------------------------|----------------|----------------|----------------|----------------|----------------|-------------------------------|
| Europe ¹ | 103,787 | 119,972 | 109,487 | 107,465 | 97,897 | 61% |
| China* | 4,632 | 4,526 | 5,615 | 9,021 | 18,474 | 5% |
| South Korea* | 848 | 839 | 2,726 | 5,828 | 1,351 | 1% |
| Canada | 1,689 | 1,164 | 760 | 551 | 6,482 | 1% |
| Japan | 903 | 277 | 1,131 | 980 | 2,643 | 1% |
| Australia | 929 | 1,096 | 1,158 | 1,100 | 1,213 | 1% |
| Other Countries | 2,064 | 3,943 | 3,276 | 2,763 | 2,635 | 2% |
| Total Exports | 114,852 | 131,819 | 124,153 | 127,708 | 130,694 | 71% |
| U.S. (Estimated) ² | 61,865 | 52,151 | 51,956 | 48,469 | 41,981 | 29% |
| Total Production | 176,717 | 183,970 | 176,109 | 176,177 | 172,675 | 100% |
| Percent Exported | 65% | 72% | 70% | 72% | 76% | |

Notes: Data pertains to primary exports only, does not portray product which may be re-exported to other markets. * Denotes countries which primarily re-process and/or re-export product to other markets.

¹ Includes all countries in the European Single Market.

² Estimated based on annual production less calendar year exports.

Source: ASMI Export Database, AKFIN, and McDowell Group estimates.

Estimates indicate that domestic market purchases decreased steadily over the 2013 to 2017 period – both in volume (61,865 mt to 41,981 mt) and as a percent of Alaska’s total fillet production (from 35 percent to 24 percent). This indicates comparatively strong export markets, primarily in Europe where demand could be increasing in part due to high cod prices driving substitution, among other factors.

Europe Europe is the world’s largest market for pollock fillets. European countries account for 80 to 90 percent of all U.S. pollock fillet export value. European markets imported 97,897 mt of Alaskan pollock fillets in 2017, worth \$257 million (Figure 8.4). Alaskan pollock fillets are primarily exported to Europe via Germany and the Netherlands. Most secondary processing into finished products occurs in Germany, France, and Poland. Germany is the largest consumer of pollock fillets, although France and the U.K. are also major consumer markets in Europe. Europe has a long history of whitefish consumption, so the presence of pollock as an affordable substitute to cod is common in most countries. Overall consumption of finished product is mostly a function of population, the prevalence of modern grocery stores, and median household incomes.

The total volume of exports to Europe have remained more or less steady in recent years, though export value/mt has continued a steady, long-term decline as export prices declined 24 percent from \$3,455 to \$2,630 from 2010 to 2017.

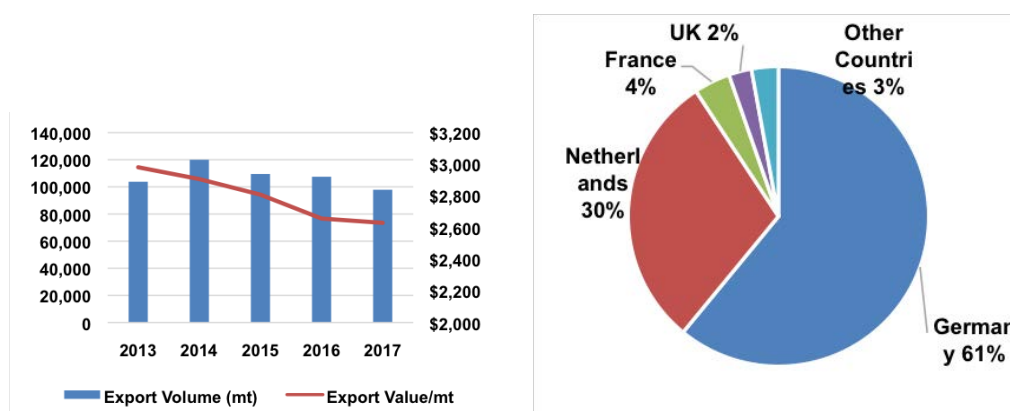


Figure 8.4: Exports of Alaska pollock fillets to major European markets, 2013-2017.

| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|----------------|----------------|----------------|----------------|----------------|
| Export Volume (mt) | 103,787 | 119,972 | 109,487 | 107,465 | 97,897 |
| Export Value (\$000s) | \$309,385 | \$348,675 | \$307,437 | \$285,547 | \$257,466 |
| Average Export Value per Metric Ton (\$US) | \$2,981 | \$2,906 | \$2,808 | \$2,657 | \$2,630 |

Source: ASMI Export database, compiled by McDowell Group.

Europe imports between 270,000 and 310,000 metric tons of pollock fillets per year from China, Alaska, and Russia. Alaskan once-frozen pollock fillets accounted for more than a third (37 percent) of all pollock fillets imported into Europe over the past five years. The balance comes from China - mostly re-processed, twice-frozen fillet block made from Russian pollock - or directly from Russia as single-frozen fillet blocks.

Several major European retailers have committed to only selling certain seafood products from sustainable fisheries, certified by the Marine Stewardship Council (MSC). Until Russia's Sea of Okhotsk pollock fishery was certified in 2013, Alaska's pollock fisheries were the only source for certified pollock fillets. MSC certification of Russia's Sea of Okhotsk fishery led to increased competition in key European markets, a slump in wholesale prices, and a declining premium for once-frozen Alaska's pollock fillets. While fillet prices have increased in 2018, Russia's increasing production of once-frozen fillet blocks is an important trend with significant potential to impact the value of Alaska's pollock fillet production going forward.

United States The U.S. domestic market is the second-largest consumer of Alaska pollock fillets in the world. In contrast to Europe, Americans consume more pollock through foodservice channels than retail outlets. Pollock is the primary whitefish species used in most generic fried fish sandwiches, although it is becoming more common to see the species name identified in product messaging.

The U.S. market consumed an average of 93 thousand mt of pollock fillets per year from 2013-2017, with domestic supply decreasing over this period to 68 thousand mt consumed in 2017 (Table 8.6). The main factor behind declining U.S. pollock supply is a steady decrease in pollock imports.

Imports declined 52 percent from more than 55 thousand mt in 2013 to 26 thousand mt in 2017. As a result of declining imports, the share of domestic pollock fillet consumption originating from Alaska has increased, from an estimated 53 percent in 2013 to 61 percent in 2017.

Table 8.6: Estimated U.S. pollock fillet market supply (mt), 2013-2017

| Year | Alaskan Pollock Fillet Production | Imports | Exports | Est. U.S. Supply | Est. Once- Frozen Product from Alaska | Pct. Alaskan |
|---------------------------|--|---------------|----------------|---------------------|---|-----------------|
| 2013 | 176,717 | 55,105 | 114,852 | 116,970 | 61,865 | 53% |
| 2014 | 183,970 | 49,833 | 131,819 | 101,984 | 52,151 | 51% |
| 2015 | 176,109 | 44,532 | 124,153 | 96,488 | 51,956 | 54% |
| 2016 | 176,177 | 32,000 | 127,708 | 80,469 | 48,469 | 60% |
| 2017 | 172,675 | 26,361 | 130,694 | 68,342 | 41,981 | 61% |
| 2013-2017 Avg. | 177,130 | 41,566 | 125,845 | 92,851 | 51,284 | 55% |

Notes: Figures may not sum due to rounding.

Source: NMFS OST, AKFIN, ASMI Export Database, and McDowell Group estimates.

Pollock fillets are usually put through a secondary manufacturing process before reaching American consumers. Most fillets are bought by companies unaffiliated with harvesting companies in Alaska or Russia. However, there is some integration in the U.S. market. Alaska's largest pollock producer, Trident Seafoods, owns 29 percent of the pollock quota in Alaska. Trident sells a variety of finished products to retailers, including pollock fillets, burgers, and fish sticks through a variety of stores including Costco.

Competing Supply

Alaskan pollock's primary competition comes from Russian-origin twice-frozen pollock fillets. The vast majority of Russian pollock production is exported as a frozen H&G product to China, where it is thawed, filleted, then re-frozen and exported to other countries. Once-frozen fillet production in Russia is limited by minimal processing capacity, though such production is expected to grow due to a major government-backed initiative.

Roughly half of Russia's pollock harvests occur in the Sea of Okhotsk. MSC certification of the Sea of Okhotsk fishery in 2013 significantly increased the impact of Russian production on Alaska by opening up Russian-origin products to key European fillet markets that require MSC certification. Russian production is expected to decline slightly in the coming years, while Alaska production is expected to increase slightly (Figure 8.5). However, a variety of other efforts are underway to increase the value of Russian pollock production and exports. Fillet production increased 34 percent from 2015 to 2016 (from 40,200 mt to 53,700 mt) and is projected by some to triple from 2016 to

2025 with the construction of more than 20 fish processing facilities and 33 fishing vessels, as well as the launch of a new marketing and supply chain organization known as “The Russian Fish.”³

Other whitefish species such as cod, haddock, saithe, hake, hoki, sole, tilapia, and pangasius also impact the market for Alaska pollock fillets as potential substitutes in the global fillet market.

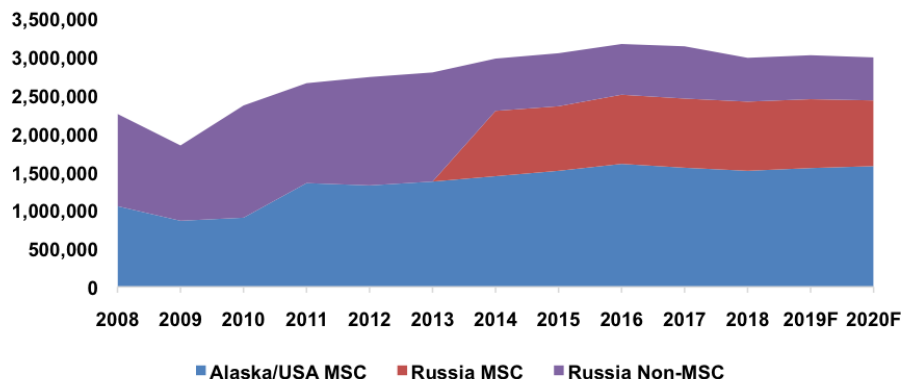


Figure 8.5: Russian and Alaska pollock harvests, 2008-2018 and 2019-2020 forecasts

Source: FAO, NOAA OST, AKFIN, Groundfish Forum, NPFMC TACs, and McDowell Group estimates.

8.2.2 Alaska Pollock Surimi

Surimi accounted for 34 percent of Alaska’s pollock wholesale production volume and 41 percent of wholesale production value in 2017. More than 207,000 mt of pollock surimi, worth \$595 million, was produced in Alaska in 2017. Japan, Europe, South Korea, and the U.S. are key surimi markets. Surimi can be made from a variety of fish, but Alaska pollock surimi is sought after for its white color, binding ability, abundance, and mild flavor.

The term surimi refers to the intermediate product used in the production of surimi seafood products. Surimi is an odorless, protein-rich, wet paste that is an intermediate product used in the production of a variety of surimi seafood products (such as imitation crab meat). Pollock surimi is made using finely minced meat that has been repeatedly rinsed and mixed with additives such as salt, starch, and sugar, and then frozen and packaged. The quality of surimi is determined by its gel strength, color (the whiter, the better), and purity. Surimi technology has improved over the years, with the yield increasing from 12 percent to over 30 percent. Surimi production is standard in nearly all of the Alaska’s major shoreside and at-sea processing facilities that focus on pollock. Grades of surimi commonly available from Alaska processors include (in descending order of quality) SA, FA, AA, KA, KB, KC, and RA. Demand for surimi made with only “natural” additives has been increasing in recent years, due to shifting consumer preferences and an increasing focus on product development.

There are hundreds of surimi seafood product varieties produced by secondary processors. The broad categories include kamakobo (steamed), chikuma (broiled), satsuma-age (fried), and seafood analogs (e.g. imitation crab sticks).

³<https://www.intrafish.com/marketplace/1659121/russia-planning-aggressive-expansion-of-value-added-exports>
<https://www.seafoodsource.com/news/supply-trade/new-campaign-to-refresh-marketing-supply-chain-efforts-in-russia>

Supply Chain

Alaskan pollock surimi blocks are produced by catcher-processors with onboard surimi processing capacity and by shoreside processors that take deliveries of unprocessed pollock from catcher vessels. Alaska processors sell frozen surimi blocks to secondary processors (some of which may be affiliated with the primary processing company) and distribution companies in Asia, the U.S., and Europe. Secondary processors use surimi blocks from Alaska to create surimi seafood products tailored to various end markets.

Surimi Production Analysis

In 2017, surimi accounted for 34 percent of Alaskan pollock production volume and 41 percent of first wholesale value. Surimi production reached 207,300 mt last year and had a value of \$595 million (Figure 8.6). Production volume has typically ranged from 150,000 to 200,000 mt annually (except for a drop in 2008-2010), driven primarily by harvest volumes. Surimi production volume is also driven by the relative demand for surimi versus fillets, though surimi production as percentage of total pollock production has been relatively steady. From 2008 through 2017, this percentage has ranged from 24 to 35 percent. In recent years, surimi production has grown steadily as harvests levels and surimi prices increased.

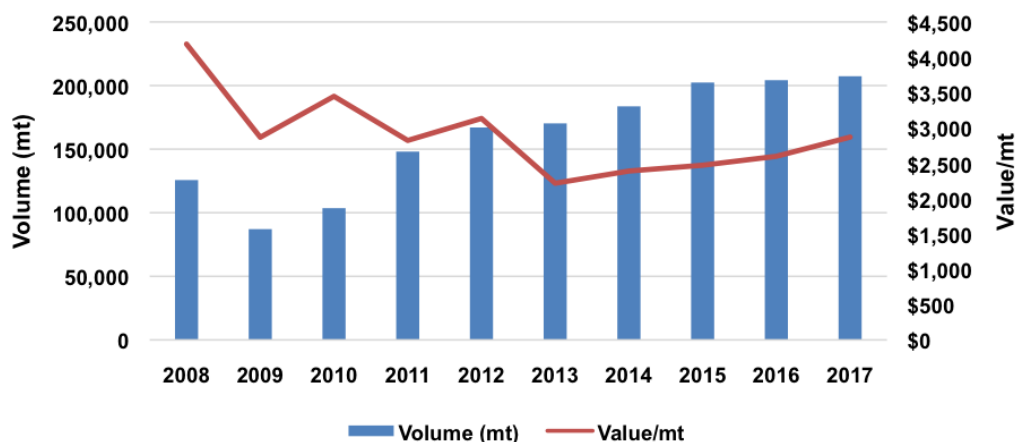


Figure 8.6: Wholesale production volume and value for Alaska pollock surimi, 2008-2017.

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Value (\$millions) | \$526 | \$250 | \$357 | \$418 | \$524 | \$378 | \$439 | \$500 | \$531 | \$595 |

Source: AKFIN.

Wholesale value is more variable, as the price of Alaskan pollock surimi can vary from year to year depending on global surimi market conditions. Average surimi material prices were \$2.87 per kilo in 2017, up 10 percent from the previous year. Preliminary data from 2018 indicates that the trend of increasing surimi wholesale prices has continued, with export prices in the first nine months of 2018 up 10 percent over the same period in 2017.

Key Market Analysis

Approximately 90 percent of Alaskan pollock surimi is sold to export markets (Table 8.7). In 2017, Japan and South Korea imported 70 percent of all Alaskan pollock surimi production. The remaining markets included Europe, U.S., China, and Thailand. Europe is a larger market than the export data below suggests, importing significant volumes of surimi from South Korea (containing Alaskan pollock as well as surimi made from other species). U.S. surimi exports in 2017 were 10 percent above the previous four-year average.

Table 8.7: U.S. exports of Alaska pollock surimi by country (mt), 2013-2017

| | | | | | | % Change over 2013-2016 Avg. | % of Total (2013-2017) |
|-------------------------|----------------|----------------|----------------|----------------|----------------|---------------------------------------|---------------------------|
| Country | 2013 | 2014 | 2015 | 2016 | 2017 | | |
| Japan | 56,292 | 71,889 | 81,830 | 69,184 | 74,554 | 7% | 37% |
| South Korea | 61,448 | 56,847 | 60,407 | 71,113 | 71,570 | 15% | 33% |
| Europe | 35,626 | 25,324 | 22,697 | 27,832 | 26,419 | -5% | 14% |
| Thailand | 530 | 1,198 | 2,395 | 4,831 | 7,746 | 246% | 2% |
| China | 1,466 | 1,281 | 2,008 | 2,194 | 3,280 | 89% | 1% |
| Other Countries | 5,546 | 4,366 | 2,176 | 2,862 | 1,712 | -54% | 2% |
| Total Exports | 160,907 | 160,906 | 171,513 | 178,016 | 185,281 | 10% | 89% |
| U.S. (Estimated) | 9,352 | 22,750 | 30,870 | 26,215 | 22,060 | -1% | 11% |
| Total Production | 170,259 | 183,656 | 202,383 | 204,230 | 207,341 | 9% | 100% |
| Percent Exported | 95% | 88% | 85% | 87% | 89% | - | - |

Notes: Reflects direct exports only. Does not reflect final market destination.

Source: ASMI Export Database and AKFIN.

The global production of raw surimi material totaled approximately 820,000 metric tons in 2017, down from the 850,000 mt produced in 2016.⁴ The decline is attributed primarily to declining tropical fish harvests – the source of nearly two-thirds of global surimi production. Alaska’s pollock fishery accounts for roughly a quarter of global surimi production. Japan is the largest market for surimi, though other Asian countries such as China and Korea are important and growing surimi consumers.

The 820,000 mt of raw surimi produced in 2017 was converted into an estimated 3 million metric tons of surimi seafood products. China was the largest producer of end products – despite consuming less surimi raw material than Japan – due to a lower average percentage of seafood in their surimi seafood products.

Japan Japan is the world’s largest end market for surimi seafood products, consuming a third of global surimi production. Large companies and artisanal shops in Japan process over 1,000 different

⁴Future Seafood Group (via Undercurrent News).

surimi products. Consumption has declined since the mid-1970s, but has stabilized since 2010 at roughly 570,000 mt of surimi seafood products per year.⁵

Japan directly imported 37 percent of Alaskan pollock surimi produced from 2013 to 2017, averaging 70,750 mt of direct imports worth \$156 million per year (Table 23). Including product routed through Korea and other countries, more than half of Alaska's total pollock surimi production is estimated to go to the Japanese market.

Alaska accounted for 47 percent of Japan's imported surimi volume between 2013 and 2017 (Table 8.8). Competing suppliers include Thailand, India, China, and Vietnam. Thailand's tropical surimi production has declined in recent years and India has increased market share as a lower cost producer with access to substantial resources.

Table 8.8: Japan surimi imports from major producers (mt), 2013-2017

| Exporter | 2013 | 2014 | 2015 | 2016 | 2017 | Pct. of Total (5-yr. Avg.) |
|-------------------------|----------------|----------------|----------------|----------------|----------------|-------------------------------|
| U.S. (Alaska) | 99,525 | 117,827 | 124,018 | 110,320 | 137,681 | 47% |
| India | 28,083 | 33,969 | 38,177 | 33,323 | 38,407 | 14% |
| Thailand | 36,661 | 34,159 | 30,342 | 29,296 | 22,412 | 12% |
| China | 13,459 | 19,078 | 17,898 | 19,303 | 17,416 | 7% |
| Vietnam | 12,122 | 16,753 | 16,327 | 15,883 | 15,356 | 6% |
| All Others | 34,875 | 37,599 | 35,096 | 33,369 | 31,287 | 14% |
| Total | 224,725 | 259,386 | 261,857 | 241,496 | 262,560 | - |
| Pct. from Alaska | 44% | 45% | 47% | 46% | 52% | - |

Source: Japan Trade Statistics (Ministry of Finance), compiled by McDowell Group.

South Korea The U.S. exported 71,570 mt (worth \$177 million) of Alaskan pollock surimi to South Korea in 2017, which accounted for 39 percent of Alaskan pollock surimi exports (Table 23). Some of the exports to Korea are likely held in bonded, duty-free cold storage warehouses before being shipped to other markets (primarily Japan, Europe, and Russia). Despite the prevalent re-export trade, South Korea is the second-largest buyer of Alaska surimi in terms of a single country (in most years). The 2012 Korea-U.S. Free Trade Agreement has deepened the economic ties between Korea and the U.S. and increased consumption of U.S. pollock surimi.

South Korea imported roughly 130,000 mt of all surimi varieties in 2017, or about half as much import volume as Japan. Vietnam and China are the country's top surimi suppliers, while Alaska accounted for 19 percent of total surimi imports.⁶ Korea is one of the largest manufacturers of surimi seafood products after China and Japan, supplying its own domestic market and other international markets.

Europe Europe is a large market for Alaskan pollock surimi. Alaska producers exported 26,419 mt of surimi worth \$58 million to Europe in 2017 (Table 23). Direct exports of Alaskan pollock

⁵(Park, 2014)

⁶<https://www.undercurrentnews.com/2018/12/10/pollock-surimi-cant-meet-global-demand-as-tropical-supply-continues-to-drop/>

surimi accounts for approximately half of the market's total surimi base consumption (~50,000 mt annually). Processors in France, Spain, Lithuania, and Poland produce surimi seafood products for the European market, with relatively little importation of foreign surimi seafood products.⁷ Spain and France are Europe's largest surimi consumers, accounting for more than 70 percent of the region's total consumption.

United States The United States market for surimi is dominated by imitation crab products. Seven surimi processors operate in North America, consuming roughly 35,000 mt of surimi raw material (mostly Alaska pollock but also whiting/hake and other species) to produce an estimated 100,000 mt of surimi seafood products. American surimi producers have focused on product innovation in recent years. An example of a recent product developed is Trident Seafoods' surimi noodles. The U.S. also imports surimi seafood products from Japan and other countries, though trade data do not allow for a detailed analysis of these product flows.

Competing Supply

Pollock surimi accounted for about a quarter of global surimi production in 2017 (Figure 8.7). Virtually all pollock surimi is produced in Alaska or comes from Alaskan fisheries, though Russian processors plan to start producing pollock surimi in significant quantities in the coming years. Tropical surimi dominates global surimi production, accounting for about two-thirds of total production. China, Vietnam, Thailand, and India are the largest tropical surimi producers.

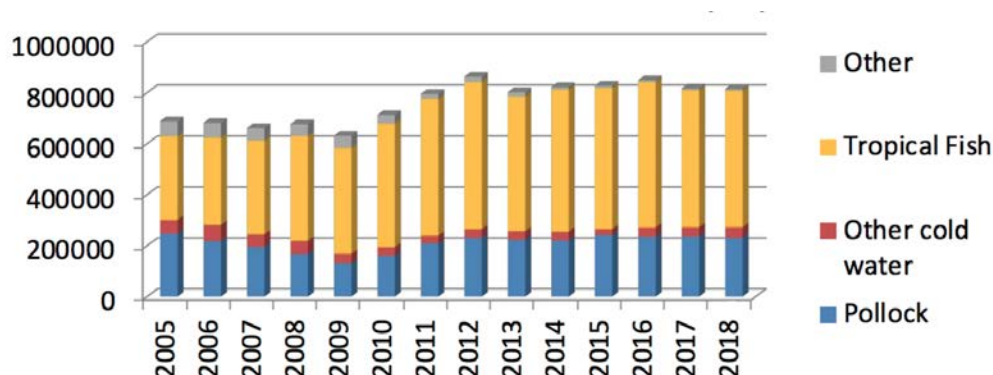


Figure 8.7: Global surimi production (mt), by source species, 2005-2018

Source: Future Seafood Group (via Undercurrent News). 2018 is an estimate.

Surimi is made from a variety of fish species. Alaskan pollock is the most widely used species accounting for 25 percent of global surimi supply, but other types of surimi utilize a range of other fish. Tropical fish species account for 68 percent of surimi production, with threadfin bream (*Nemipterus japonicus*) is the most common of these species .

Many countries have active fisheries that support surimi production. In terms of a single country, the U.S. is the second-largest surimi producer in the world. China, India, and Southeast Asia (including Thailand and Vietnam) are key tropical surimi producers. After a decade of steady growth, Vietnam has overtaken China as the largest tropical surimi producer, with more than

⁷<https://www.eumofa.eu/documents/20178/114144/MH+3+2018.pdf/04031fe1-af72-4ce0-9890-a4a15a41ec8f>

150,000 mt of production each of the last five years. Production in India has also grown steadily, while Chinese and Thai production has declined in recent years (likely due to overfishing).⁸

It should be noted that surimi production statistics are not universally tracked. Although FAO compiles data on minced fish and surimi production, the manner in which data is categorized do not allow for comprehensive production accounting. As a result, industry estimates (which are based on public and private data) are a more reliable source of information.

8.2.3 Alaska Pollock Roe

Pollock roe commands the highest price of all major pollock products at \$6.21 per kilo and was worth \$121 million (wholesale value) in 2017. It accounted for 8 percent of Alaskan pollock’s total wholesale value but only 3 percent of production volume (19,517 mt). Pollock roe is consumed as a condiment/flavoring and during holidays in Japan. South Korea is the world’s only other sizeable market.

Pollock roe production occurs when the fish are spawning, typically during the late winter and early spring. Roe is extracted during the gutting process and rapidly frozen before deterioration occurs. Roe prices are tied to the quality of the roe, which varies greatly. Lower grade roe might have defects such as discoloring, broken skeins, or roe maturity (eggs are too young or too old). Product processed at sea tends to command higher prices. Pollock roe is traditionally sold to wholesale buyers in frozen block form, packed into 49.5-lb. cases each containing three blocks of roe.

Supply Chain

Pollock roe is an export product. Frozen Alaskan pollock roe is sold at auctions in Seattle, WA, while Russian pollock roe is often sold at auctions held in Busan, South Korea. However, larger volumes of Alaska product is also sold directly to buyers through negotiated contracts. “Direct sales” have become more common in recent years, based on pricing discovered through the auction process. The pollock roe supply chain is vertically integrated for large companies that maintain a pipeline from the raw material all the way to distribution in markets in Japan and South Korea. After frozen pollock roe is exported to Asia, it eventually undergoes secondary processing. Japan, Korea, China, and Thailand are common destinations, where it is processed by defrosting and brining the roe in spices or salt.⁹

Alaska Production Analysis

Alaska pollock roe is an important element of the pollock product mix. Although it is a low-volume product, roe assumes the highest unit price of any pollock product. In 2017, 19,517 metric tons was produced (roughly in line with the ten-year average) worth \$121.2 million and was 8 percent of the species’ wholesale value (Figure 8.8). Pollock roe production is primarily a function of overall harvest volume; however, it can fluctuate significantly based on roe recovery/maturity and harvest distribution.

⁸<https://www.undercurrentnews.com/2018/12/10/pollock-surimi-cant-meet-global-demand-as-tropical-supply-continues-to-drop/>

⁹Industry interview

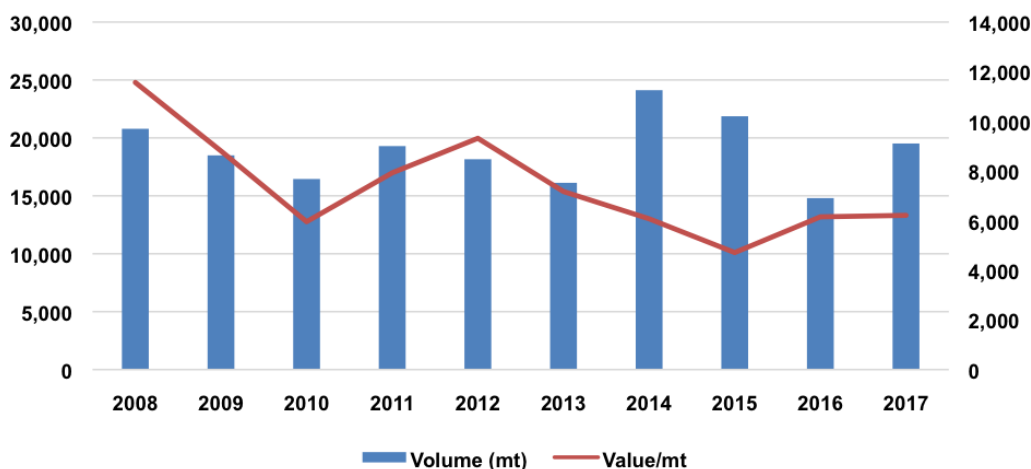


Figure 8.8: Wholesale production volume and value/mt for Alaska pollock roe, 2008-2017.

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|--------------------|-------|-------|------|-------|-------|-------|-------|-------|------|-------|
| Value (\$millions) | \$240 | \$163 | \$98 | \$153 | \$169 | \$116 | \$146 | \$103 | \$91 | \$121 |

Source: AKFIN.

Historically (prior to 2007), roe often accounted for one-third to one-fifth of Alaska pollock's total first wholesale value. However, the percentage of roe value compared to all Alaskan pollock products has declined significantly in recent years. Since 2013, roe has only generated 6 to 9 percent of total first wholesale value. Pollock roe prices have decreased steadily over the last decade due to weakening traditional markets and a lack of new markets. Roe market development is a top priority of the Alaska pollock industry.

Key Roe Market Analysis

Virtually all Alaskan pollock roe is exported to Japan or South Korea. In 2017, exports totaled 18,471 mt worth \$112 million (Table 8.9). Japan is the dominant market, absorbing more than 80 percent of finished Alaskan pollock roe exports. South Korea is the only other sizeable market, but the majority of frozen pollock roe sold to Korea is held in cold storage and exported on to the Japanese market. Exports to Europe jumped in 2017; the product entered the market through the Netherlands, though the final market is unclear. Efforts to develop other pollock roe markets outside of Japan have been largely unsuccessful, but given stagnant Japanese consumption patterns, finding additional roe markets is extremely important to the long-term health of Alaska's pollock industry.

Japan Japan is the world's primary pollock roe market with imports of 42,051 mt in 2017, worth \$285 million (Table 8.10). Alaskan product accounted for 42 percent of the import volume between 2013 and 2017. Russia is the country's largest pollock roe supplier. Imports of Alaskan product fluctuate from year to year but 2017 saw shipments matching the prior four-year average. Total Japanese pollock roe imports increased 9 percent versus the prior four-year average.

The value of roe is function of production volume in Russia and Alaska, as well as the strength or weakness of the yen. However, due to static demand, an aging population in Japan, and a

Table 8.9: Exports of Alaska pollock roe by country (mt), 2013-2017

| Export Destination | 2013 | 2014 | 2015 | 2016 | 2017 | Pct. Change from 4 Yr. Avg. |
|---------------------------------|---------------|---------------|---------------|---------------|---------------|--------------------------------|
| Japan | 6,544 | 11,212 | 10,460 | 5,457 | 8,426 | 0% |
| South Korea | 7,414 | 9,792 | 9,281 | 8,295 | 9,260 | 6% |
| China | 901 | 754 | 505 | 258 | 148 | -76% |
| Other | 108 | 20 | 33 | 50 | 637 | 1109% |
| Export Volume | 14,967 | 21,778 | 20,279 | 14,060 | 18,471 | 4% |
| Export Value (\$Million) | \$114 | \$153 | \$152 | \$111 | \$112 | -16% |
| Avg. Export Price/Kilo | \$7.63 | \$7.02 | \$7.50 | \$7.90 | \$6.05 | -19% |

Source: ASMI Export database, compiled by McDowell Group.

Table 8.10: Japan pollock roe imports (mt), 2013-2017

| Exporter | 2013 | 2014 | 2015 | 2016 | 2017 | Pct. of Total (5-yr. Avg.) |
|-------------------------|---------------|---------------|---------------|---------------|---------------|-------------------------------|
| Russia | 21,008 | 24,916 | 21,958 | 20,367 | 24,434 | 57% |
| U.S. (Alaska) | 13,158 | 19,720 | 18,440 | 14,400 | 17,357 | 42% |
| Others | 237 | 163 | 185 | 154 | 259 | 1% |
| Total | 34,403 | 44,800 | 40,582 | 34,921 | 42,051 | - |
| Pct. from Alaska | 38% | 44% | 45% | 41% | 41% | - |

Notes: Includes minor amounts of cod roe and roe from other related species.

Source: Japan Trade Statistics (Ministry of Finance), compiled by McDowell Group.

lack of market diversification, the long-term value of pollock roe is an area of concern and market development is a top priority for the Alaska pollock industry.

South Korea South Korea is the second largest consumer of pollock roe, but it also is an intermediary buyer. Russia and Alaska sent 49,745 mt of pollock roe to South Korea per year during this period (Table 8.11). Korean import statistics suggest the Korean market consumes approximately a quarter to a third of total pollock roe imports (with most of the rest ending up in Japan). Alaska supplies an estimated 19 percent of the Korean domestic market. Korea is known for having less traditional tastes than Japan, and the market will accept small sized roe that is less marketable in Japan.

8.2.4 Alaska Pollock Headed and Gutted

In 2017, headed and gutted (H&G) products accounted for 10 percent of total pollock production volume and 4 percent of the species' total first wholesale value. H&G production averaged \$80 million in value over the last five years (2013-2017). H&G pollock is frozen in blocks and the majority is exported to China for secondary processing into twice-frozen fillets.

H&G pollock is produced primarily by Alaska processors that handle pollock as part of a large mix of species and do not have the space or volume needed to invest in fillet and/or surimi processing

Table 8.11: South Korean pollock roe trade (mt), 2013-2017

| | 2013 | 2014 | 2015 | 2016 | 2017 | 5-yr. Average |
|--|---------------|---------------|---------------|---------------|---------------|---------------|
| Exports Reported by Major Producers | | | | | | |
| Russia | 39,972 | 39,488 | 42,118 | 35,991 | 47,116 | 40,937 |
| Alaska | 7,414 | 9,792 | 9,281 | 8,295 | 9,260 | 8,808 |
| Total | 47,386 | 49,280 | 51,399 | 44,286 | 56,376 | 49,745 |
| Actual Imports by Major Producer | | | | | | |
| Russia | 11,838 | 12,008 | 12,202 | 12,271 | 12,334 | 12,131 |
| Alaska | 3,425 | 3,061 | 2,955 | 2,334 | 2,368 | 2,829 |
| Total | 15,263 | 15,069 | 15,157 | 14,605 | 14,702 | 14,959 |
| Export/Import Difference | 32,123 | 34,211 | 36,242 | 29,681 | 41,674 | 34,786 |

Source: Global Trade Atlas, compiled by McDowell Group.

lines. H&G production is also a way to handle smaller pollock (these are also sometime diverted to fish meal or sold as frozen blocks of whole fish).

Product Description and Supply Chain

Virtually all H&G Alaskan pollock is sent abroad for further processing. The primary destination is China, where it is a raw material used to produce frozen fillet blocks and salted fillets for markets in Europe, the U.S., and Brazil. Secondary processors in Europe (fillet products) and Korea/Japan (likely surimi) also import significant volumes. Finally, there are anecdotal reports that some dressed and whole/round product is routed through China to markets in Africa.

Production Analysis

In 2017, H&G pollock production totaled 61,605 mt – in line with average volumes since 2009 (Figure 8.9). Over the last decade, H&G production has generally represented around 10 percent of total Alaskan pollock production volume (with the exception of big years in 2009 and 2010). H&G production value, though, was down 31 percent since 2009 due to a steady drop in prices. In 2017, H&G pollock value per mt dropped below \$1,000 – an unprecedented low in recent times.

Key H&G Market Analysis

Headed and gutted Alaskan pollock is primarily exported to China for reprocessing: the country bought 72 percent of exported Alaskan product between 2015 and 2017 (Table 8.12). South Korea and Ukraine also import substantial volumes of H&G Alaskan pollock. Virtually all of Alaska's H&G pollock production is sold to export markets, primarily to countries that perform secondary processing to produce whitefish fillets or surimi.

China The majority of Alaskan H&G pollock is sent to China for secondary processing, due to lower production costs. In 2017, China reported imports of 54,489 mt of Alaskan H&G/whole pollock (Table 8.13). This product, along with Russian H&G pollock is processed into fillets and

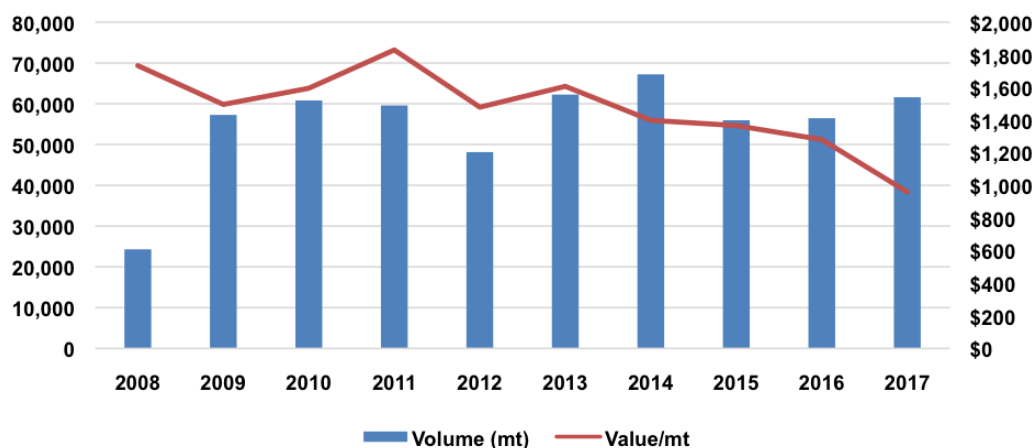


Figure 8.9: Wholesale production volume and value for H&G Alaska pollock, 2008-2017.

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|--------------------|------|------|------|-------|------|-------|------|------|------|------|
| Value (\$millions) | \$42 | \$86 | \$97 | \$109 | \$71 | \$100 | \$94 | \$76 | \$72 | \$59 |

Source: AKFIN.

Table 8.12: Alaska pollock H&G exports (mt), by country, 2015-2017

| Exporter | 2015 | 2016 | 2017 | Pct. of Total (2015-2017) |
|----------------------|---------------|---------------|---------------|---------------------------|
| China | 44,729 | 51,757 | 54,489 | 72% |
| Ukraine | 664 | 3,296 | 10,029 | 7% |
| South Korea | 5,885 | 10,748 | 6,886 | 11% |
| Thailand | 3,291 | 3,842 | 2,543 | 5% |
| Other Countries | 4,077 | 4,342 | 2,140 | 5% |
| Total Exports | 58,646 | 73,985 | 76,087 | |

Source: Global Trade Atlas

other salted or breaded products for re-export to Europe, the U.S., and Brazil. At this point, most product joins the global pollock fillet supply as a twice frozen product.

Table 8.13: China imports of frozen H&G pollock by country (mt), 2015-2017

| Country | 2015 | 2016 | 2017 |
|--------------|----------------|----------------|----------------|
| Russia | 560,516 | 556,927 | 595,097 |
| U.S. | 44,729 | 51,757 | 54,489 |
| Japan | 18,064 | 9,275 | 4,598 |
| Other | 2,025 | 7,104 | 12,147 |
| Total | 625,334 | 625,063 | 666,331 |

Source: Global Trade Atlas.

More than half of China's frozen pollock fillets are re-exported to Europe. The U.S. is the next largest market, accounting for 10 percent of re-exports while South Korea and Brazil are also important.

Competing Supply

The largest pollock harvests come from Alaska and Russia, with combined TACs over three million metric tons. The vast majority of Russian pollock is exported or sold to domestic buyers as an H&G product, while most Alaskan pollock is filleted directly or used in surimi production. Alaskan H&G pollock supply is somewhat dictated by relative value of once-frozen pollock fillets over twice-frozen pollock and other whitefish fillets, as well as processing production costs in Alaska relative to other areas.

8.3. Pacific Cod Market Profile

Pacific cod (*Gadus macrocephalus*) is a whitefish found in the coastal Pacific Ocean from Alaska to California, with the largest concentrations found in the Gulf of Alaska and Bering Sea. One of the largest of the Alaska groundfish species, Pacific cod are highly valued for their mild, white flesh and are primarily processed into fillet and H&G products. Final cod products include fillets and fish sticks destined for international and domestic markets. In 2016, Alaska's Pacific cod accounted for 18 percent of the total global cod harvest. In 2017, Alaska cod harvest and production volumes declined slightly over the previous year but increased prices driven by global supply constraints pushed the first wholesale value up to a 12-year peak of \$510 million (Table 8.14).

Table 8.14: Summary profile of Alaska Pacific cod wholesale production and markets, 2017

| Value and Volume | | Key Products | H&G | Fillet | Other | |
|------------------------------------|---------|---|-------|--------|-------|-------|
| First Wholesale Production (mt) | 136,990 | Pct. of Value | 67% | 25% | 8% | |
| Pct. of Global Cod Harvest (2016) | 18% | Key Markets | China | Europe | U.S. | Other |
| First Wholesale Value (\$millions) | \$510 | Pct. of 1 st Sales | 28% | 10% | 44% | 17% |
| Pct. of Alaska Groundfish Value | 20% | YoY Value Change | -6% | -14% | 25% | -6% |
| Production Volume Exported | 65% | Competing Species: Russian Pacific cod and Atlantic cod | | | | |

Alaska Pacific Cod Production Summary

In 2017, Alaska's processors produced 136,990 mt of Pacific cod products, valued at \$510.2 million (Figure 8.10). Production volume in 2017 was the lowest since 2010, closely tracking lower TACs and harvests. Despite lower volumes, 2017 production value rose to a 12-year high of \$510 million due to an exceptionally strong market. Price increases are generally understood to be the result of strong demand combined with a reduction in Pacific and Atlantic cod harvest volume, as well as a reduction in the haddock quota in the Barents Sea. Strong cod pricing continued throughout 2018 and enters 2019 near peak 2008 levels.

H&G product accounted for 72 percent of production volume (98,489 mt) in 2017, and 67 percent of first wholesale value (\$341 million) (Figure 8.11). Fillets accounted for 12 percent by wholesale volume (16,538 mt) and 25 percent of first wholesale value (\$127 million). Other products (e.g., roe, milt, fish meal) collectively made up 16 percent of wholesale volume with 21,963 mt valued at \$42.5 million.

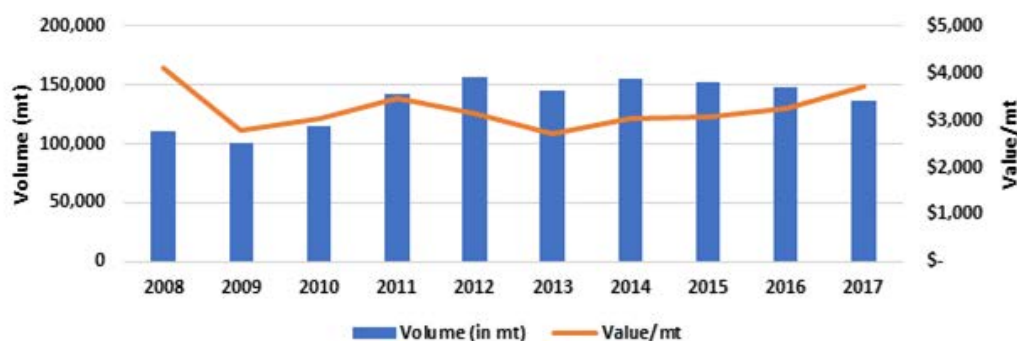


Figure 8.10: First wholesale volume and value/mt for Alaska Pacific cod, 2008-2017.

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Value (\$millions) | \$457 | \$280 | \$351 | \$498 | \$496 | \$398 | \$471 | \$467 | \$480 | \$510 |

Source: AKFIN.

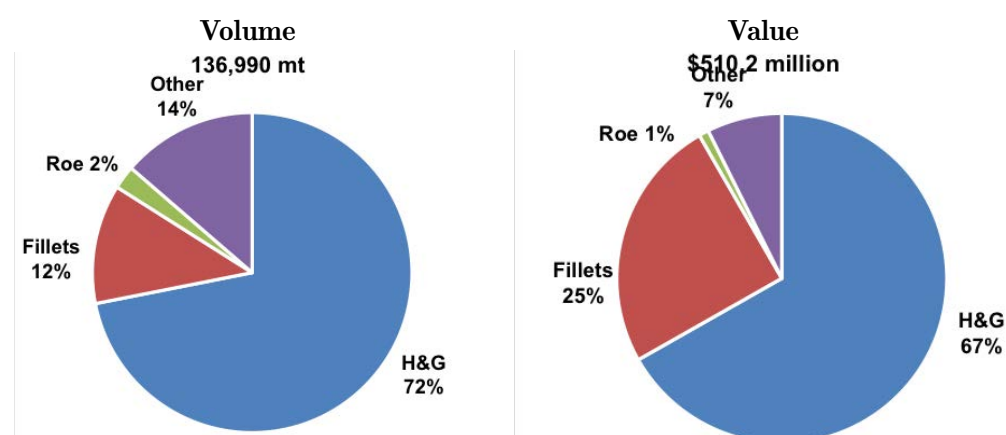


Figure 8.11: Volume and value of Pacific cod wholesale production in Alaska, by product type, 2017.
Source: AKFIN.

Product Analysis and Supply Chain: Head and Gut and Fillets

Alaska's Pacific cod harvest is primarily processed as H&G, with a significant shore-based production focus on fillets. Most H&G cod is frozen and exported for secondary processing in China, Europe, and Japan. Single-frozen Alaska cod fillets are a high-value product destined primarily for domestic markets. Fillet product forms include frozen shatterpacks, blocks, IQF (individually-quick frozen), and a small amount of fresh.

Final products (after secondary processing) include fillets, frozen portions, salted cod, and value-added products sold in restaurants, grocery stores, and in food service. The largest final markets for Alaska's cod are in Europe and the U.S. In many end markets, cod is not differentiated at the consumer level between Pacific cod or Atlantic cod.

Headed and Gutted (H&G)

H&G products – which make up nearly three-quarters of Alaska’s cod production – follow complex supply chains spread across numerous markets. Most frozen H&G product is exported, and the largest reprocessing market is China, which re-exports the bulk of their cod imports to the U.S. and Europe. Cod sent to Japan and Europe is reprocessed and consumed in those regions. Some H&G product distributed to domestic U.S. market is thawed and filleted and sold thawed without refreezing, known as the refresh market. Other U.S. processors create fillet blocks to produce breaded or coated sticks and portions.

Fillets

Alaska processors produced 16,538 mt of cod fillets in 2017, worth \$127 million. Most Alaska cod fillets are packaged as shatterpacks, consisting of frozen fillet blocks with individual fillets separated by plastic sheets, making them easier to separate without the need for the entire block to be thawed.

Key Market Analysis

Head and Gut

In 2017, Alaska Pacific cod H&G exports totaled 86,043 mt, representing 96 percent of Alaska’s cod exports (Table 8.15).¹⁰ H&G exports have been relatively stable in recent years, though 2017 saw a decrease of 12 percent over 2016, primarily due to reduced harvest levels. China is the largest importer of Alaska’s Pacific cod, most of which is reprocessed for export to the U.S. and Europe. In 2017, China imported 47,975 mt of cod from Alaska. The next largest export markets are Japan, Europe, and South Korea.

Fillet

In 2017, Alaska processors produced 16,538 mt of Alaska Pacific cod fillets (single-frozen) worth \$127 million (Table 8.16). The vast majority of this production is sold into the U.S. domestic market. The rest is exported, with China the largest single export market in recent years. In 2017, cod fillets made up 4 percent of the value of Alaska’s cod exports, down from 12 percent in 2010. The period 2010 to 2013 saw South Korea and Japan shift fillet demand to H&G and substantial declines in demand from Portugal and Spain.

United States The U.S. is by far the most important market for Alaska’s single-frozen Pacific cod fillets, purchasing 74 to 88 percent of Alaska production over the last five years and absorbed 13,362 mt in 2017 (Table 8.17). The U.S. also imported 74,022 mt of cod in 2017 (Pacific and Atlantic cod combined), valued at \$513.7 million. Of this, frozen fillets accounted for 75 percent of import

¹⁰ ASMI Export Database. Some cod exports are comingled with other fish and not distinguishable by species in export data, including fish meal, organs, and other ancillary products. H&G represent 96 percent of distinguishable cod exports.

Table 8.15: Sales of H&G Alaska Pacific cod to key markets (mt), 2013-2017

| Market | 2013 | 2014 | 2015 | 2016 | 2017 | Pct. of Total (2013-2017) |
|-------------------------------|----------------|----------------|----------------|----------------|---------------|------------------------------|
| China* | 45,841 | 55,181 | 56,419 | 55,428 | 46,483 | 48% |
| Europe ¹ | 20,922 | 17,973 | 18,619 | 15,894 | 13,903 | 16% |
| Japan* | 10,908 | 16,338 | 13,995 | 13,865 | 13,914 | 13% |
| South Korea* | 7,686 | 5,388 | 8,939 | 8,951 | 7,404 | 7% |
| Canada | 1,347 | 1,038 | 1,237 | 1,208 | 1,701 | 1% |
| Other Countries | 3,473 | 1,792 | 2,948 | 2,595 | 2,636 | 2% |
| Total Exports | 90,178 | 97,711 | 102,157 | 97,940 | 86,043 | 88% |
| U.S. (Estimated) ² | 12,760 | 15,714 | 17,496 | 9,169 | 12,446 | 12% |
| Alaska Production | 102,938 | 113,425 | 119,653 | 107,109 | 98,489 | |

Notes: Data pertains to primary exports only, does not portray product which may be re-exported to other markets.

* Denotes countries which primarily re-process and/or re-export product to other markets.

¹ Europe refers to the major European export destinations: France, Denmark, Spain, Netherlands, Germany, Italy, and Portugal.

² Estimated based on annual production less calendar year exports.

Source: AKFIN, NOAA OST, ASMI Export Database, and McDowell Group estimates.

Table 8.16: Sales of Alaska Pacific cod fillets to key markets (mt), 2013-2017

| Market | 2013 | 2014 | 2015 | 2016 | 2017 | Pct. of Total (5-yr. Avg.) |
|-------------------------------|---------------|---------------|---------------|---------------|---------------|-------------------------------|
| China* | 852 | 759 | 1,489 | 1,017 | 1,491 | 7% |
| Canada | 1,004 | 588 | 796 | 731 | 595 | 5% |
| Portugal | 201 | 80 | 507 | 188 | 586 | 2% |
| Spain | 25 | 63 | 117 | 114 | 289 | 1% |
| South Korea | 0 | 66 | 42 | 58 | 57 | 0% |
| Other | 439 | 576 | 313 | 289 | 158 | 2% |
| Total Exports | 2,521 | 2,132 | 3,264 | 2,397 | 3,176 | 16% |
| U.S. (Estimated) ¹ | 15,975 | 16,136 | 9,403 | 15,502 | 13,362 | 84% |
| Alaska Production | 18,496 | 18,268 | 12,667 | 17,900 | 16,538 | |

Notes: Data pertains to primary exports only, does not portray product which may be re-exported to other markets.

* Denotes countries which primarily re-process and/or re-export product to other markets.

¹ Estimated based on annual production less calendar year exports.

Source: AKFIN, NOAA OST, ASMI Export Database, and McDowell Group estimates.

volume. China comprises the majority import market with 79 percent of U.S. cod fillet import volume (2017), much of the remainder are Atlantic fillets from Iceland.

China China imports H&G cod (both Pacific and Atlantic) as raw material for reprocessing into twice-frozen fillet blocks, frozen portions, and value-added products such as battered or breaded

Table 8.17: Total cod imports into U.S. market, volume and value, 2013-2017

| | 2013 | 2014 | 2015 | 2016 | 2017 | Pct. Change YoY 2017 |
|--------------------|----------|----------|----------|----------|----------|-------------------------|
| Volume (mt) | 59,850 | 66,495 | 67,757 | 70,670 | 74,022 | 4.7% |
| Value (\$millions) | \$341.46 | \$393.02 | \$430.70 | \$465.97 | \$513.73 | 10.2% |
| Value/kilo (\$) | \$5.71 | \$5.91 | \$6.36 | \$6.59 | \$6.94 | 5.3% |

Source: NOAA OST.

portions. In 2017, Alaska exported 47,975 mt of cod to China, representing 35 percent of Alaska cod production volume and 24 percent of China's total cod imports (Atlantic and Pacific cod) (Table 8.18).

Double-frozen Chinese-produced cod fillets (Pacific and Atlantic cod) are reexported to the rest of the world, with the U.S., Europe, and Canada being the largest markets. Other markets for Chinese cod include countries like Japan and Brazil. The trade disputes with China and the risk of escalating tariffs on cod products reprocessed in China poses risks to cod supply chains.

Table 8.18: Primary export markets for Chinese twice-frozen cod fillets (mt), 2013-2017.

| | 2013 | 2014 | 2015 | 2016 | 2017 | Percent Change, 2013-2017 |
|--------------|----------------|----------------|----------------|----------------|----------------|---------------------------------|
| U.S. | 38,899 | 44,756 | 43,369 | 44,384 | 46,985 | 21% |
| U.K. | 20,705 | 24,634 | 20,767 | 20,218 | 20,769 | 0% |
| Germany | 12,220 | 16,232 | 15,269 | 15,711 | 15,038 | 23% |
| Spain | 8,223 | 11,710 | 11,081 | 11,462 | 10,732 | 31% |
| France | 5,643 | 5,943 | 6,085 | 7,230 | 8,378 | 48% |
| Canada | 4,568 | 4,918 | 4,654 | 6,945 | 8,001 | 75% |
| Sweden | 4,691 | 6,831 | 6,393 | 5,908 | 5,949 | 27% |
| Japan | 3,735 | 3,579 | 3,182 | 3,234 | 3,168 | -15% |
| Netherlands | 4,083 | 3,183 | 2,430 | 2,816 | 2,512 | -38% |
| Other | 15,525 | 16,833 | 13,644 | 13,923 | 11,257 | -27% |
| Total | 188,292 | 138,619 | 126,874 | 131,831 | 132,789 | -29% |

Notes: Figures may not sum due to rounding.

Source: Global Trade Atlas.

Japan & South Korea Japan and South Korea are also important markets for Alaska H&G cod. In 2017, 14,247 mt of Alaska cod products were exported to Japan and 7,460 mt were exported to South Korea (Table 8.19). Due to its role in warehousing and reprocessing, it is unclear how much H&G cod exported to South Korea remains in the country for domestic consumption. Both Japan and Korea are consumers of cod byproducts, including roe and cod milt.

Europe In 2017, approximately 18 percent of Pacific cod exports from Alaska were directly exported to the European market, down from 23 percent in 2013 and 40 percent in 2010 (Table 8.20).¹¹ This

¹¹ASMI Seafood Export Database

Table 8.19: Alaska Pacific cod export volume to major Asian markets (mt), 2013-2017.

| Export Market | 2013 | 2014 | 2015 | 2016 | 2017 |
|-----------------------------------|---------------|---------------|---------------|---------------|---------------|
| Japan | | | | | |
| Fillet | 59 | 46 | 50 | 15 | 36 |
| H&G | 10,751 | 16,289 | 13,995 | 13,853 | 13,866 |
| Other | 311 | 236 | 69 | 219 | 345 |
| South Korea | | | | | |
| Fillet | 0 | 66 | 42 | 58 | 57 |
| H&G | 7,686 | 5,343 | 8,916 | 8,951 | 7,404 |
| Other | 275 | 82 | 2,143 | 0 | 0 |
| Grand Total | 19,083 | 22,061 | 25,216 | 23,097 | 21,707 |
| Pct. of Alaska Cod Exports | 20% | 21% | 23% | 23% | 24% |

Source: ASMI Export Database.

is due largely to the decline in exports to Portugal, Norway, and the Netherlands resulting from the dramatic increase in Atlantic cod harvests during this period. Nevertheless, Europe is still an important end-market for Alaska's cod and while direct exports may represent a modest percentage of the total, a great deal of Alaska's cod is routed through China or South Korea before being sold into Europe.

The EU protects its domestic cod producers by maintaining higher duties on imported cod fillets, whereas frozen H&G cod can generally be imported into the EU with no tariff. Therefore, Alaska exports relatively little fillet production to the EU.

Table 8.20: European imports of cod fillets from major producers (mt), 2015-2017.

| Exporter | 2015 | 2016 | 2017 |
|---------------|----------------|----------------|----------------|
| China* | 70,312 | 72,257 | 70,485 |
| U.S. (Alaska) | 721 | 513 | 959 |
| Russia | 26,652 | 25,503 | 42,567 |
| Iceland | 25,762 | 36,344 | 32,475 |
| Norway | 10,024 | 9,178 | 9,251 |
| Total | 133,471 | 143,795 | 155,737 |

Notes: Totals may not sum due to rounding. * Denotes re-exporter.

Source: Global Trade Atlas and ASMI Export Database.

Competing Supply

The two main species of cod, Pacific cod (*Gadus macrocephalus*) and Atlantic cod (*Gadus morhua*), are found in the northern hemispheres of the Atlantic and Pacific Oceans. While there are some slight differences, as *Gadus* whitefishes, they are considered almost identical substitutes for each other. In 2016, it is estimated that 477,387 mt of Pacific cod and 1,329,450 mt of Atlantic cod were harvested globally, with some of the largest Atlantic cod harvests coming from the Barents Sea (Figure 8.12). After years of supply increases, quotas in Alaska and Europe are below their peaks and projected to decline further in coming years, buoying prices. This trend is also reinforced by

decreases in the haddock quota, which competes with cod as a lower-priced alternative. As cod prices have increased due to growing demand and/or supply constraints, pollock, the largest single species fishery in the world, has also served as a substitute for cod.

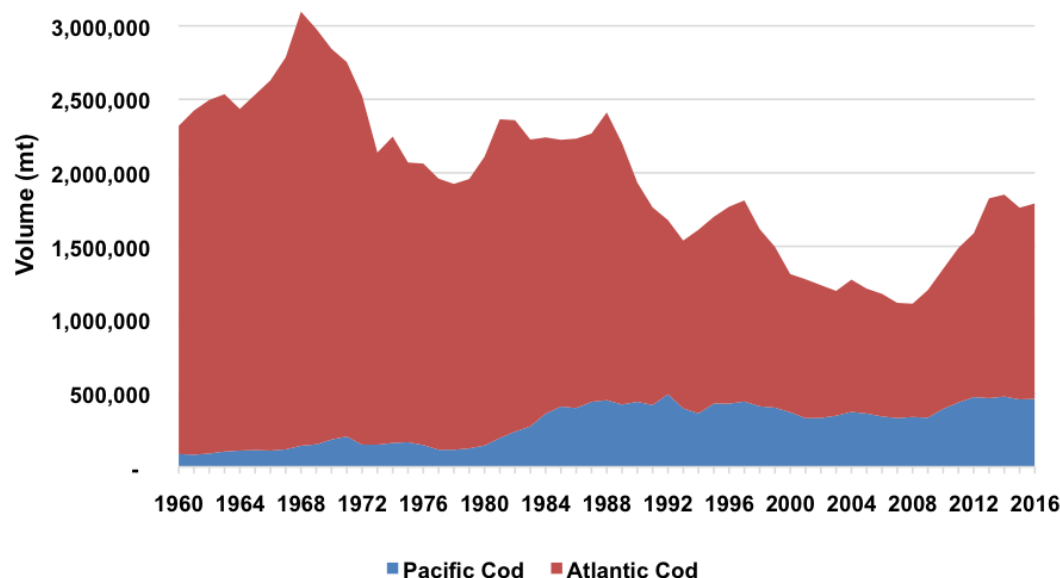


Figure 8.12: Global supply of Pacific and Atlantic cod (mt), 1960-2016

Source: FAO.

8.4. Sablefish Market Profile

Sablefish (*Anoplopoma fimbria*), also known as black cod, is a premium whitefish with a high oil content and delicate texture. Sablefish are among the most valuable species harvested in Alaska, accounting for 4.9 percent of Alaska groundfish first wholesale value in 2017 and just 0.7 percent of first wholesale production volume. In 2017, Alaska processors produced 6,593 million mt in wholesale sablefish products (nearly all H&G), valued at \$123.8 million (Table 8.21). Sablefish has long been prized by Japan, which today remains its primary market. Sablefish has also developed important markets in the U.S., China, Hong Kong, Europe, and the United Arab Emirates, among others.

Table 8.21: Summary profile of sablefish wholesale production and markets, 2017

| Value and Volume | | Key Products | H&G | Other | |
|---|---------|--|-------|-----------|--------|
| First Wholesale Production (mt) | 6,593 | Pct. of Value | 97% | 3% | |
| Pct. of Global Sablefish Harvest (2016) | 57% | Key Markets | Japan | Hong Kong | Others |
| First Wholesale Value (\$millions) | \$123.8 | Pct. of 1 st Sales | 65% | 10% | 25% |
| Pct. Change in Value from 2013-2016 | 27.5% | YoY Change | 21% | -25% | 0% |
| Pct. of Alaska Groundfish Value | 4.9% | Competing Species: Patagonia toothfish (Chilean Seabass) | | | |

Product Description

The dominant sablefish wholesale product is IQF frozen H&G (Eastern cut) fish, often sold in 50-pound boxes. Relatively small amounts of heads, collars, fillets, and other products are also produced. Combined, non-H&G production made up just 7 percent of production volume in 2017.

Following harvesting and primary processing, the majority of product is sold as frozen H&G fish to high-volume distributors in Japan and other Asian countries. Product sold into the U.S. domestic market is filleted by primary processors in Alaska or by secondary processors/distributors. Regardless of whether sablefish is exported or sold domestically, it typically passes through one or two distributors before being sold to consumers at the retail level.

Sablefish prices and markets are sensitive to the size of the fish, with larger sablefish worth much more than smaller fish. Wholesale price per pound for the largest fish can be more than double those for smaller fish. Unfortunately, smaller sablefish have become a larger portion of the harvest in recent years – a trend that is expected to continue due to significant recruitment in recent age classes and other factors affecting fish size. Small sablefish are difficult to sell into higher-end export markets, like Japan, but there is a market in China as well as a growing domestic market.

Alaska Sablefish Production

Between 2008 and 2013, first wholesale volume of sablefish products averaged just under 8,000 mt annually (Figure 8.13). Subsequently, production has fallen further due to lower harvest levels, hitting a low of less than 6,000 mt in 2016 followed by a modest rebound in 2017. The value of Alaska sablefish production peaked in 2011 (\$147 million) due to exceptionally strong prices and large harvest volumes. After dropping substantially from 2011 levels, the average first wholesale value per mt of sablefish products climbed more than 50 percent from 2013 to 2017, reaching an average value/mt of \$18,784 (based on production of 6,593 mt worth \$123.8 million).

Market Profile and Analysis

Japan is the primary market for Alaska's sablefish, generally accounting for 70 to 80 percent of total exports by volume (Table 8.22). China was the second-largest international market by volume in 2017, following several years of growth. However, when measured by value, Hong Kong was the second-most important international market after Japan, a position the country has held for several years. In contrast to Mainland China, which imports a greater volume of lower-value small sablefish for reprocessing, Hong Kong imports a greater percentage of larger fish; these imports serve both Hong Kong foodservice and retail markets as well as re-export markets in Southern China and other SE Asia countries. As a free port, exports to Hong Kong are not subject to Chinese tariffs (though presumably they would be if re-exported to China).

While exports to the Netherlands and the United Arab Emirates are modest, the volume and value of sablefish exports to these countries more than doubled over the 2013 to 2017 period. Other niche export markets exist in similarly wealthy, seafood-eating countries such as Singapore, the U.K., and South Korea.

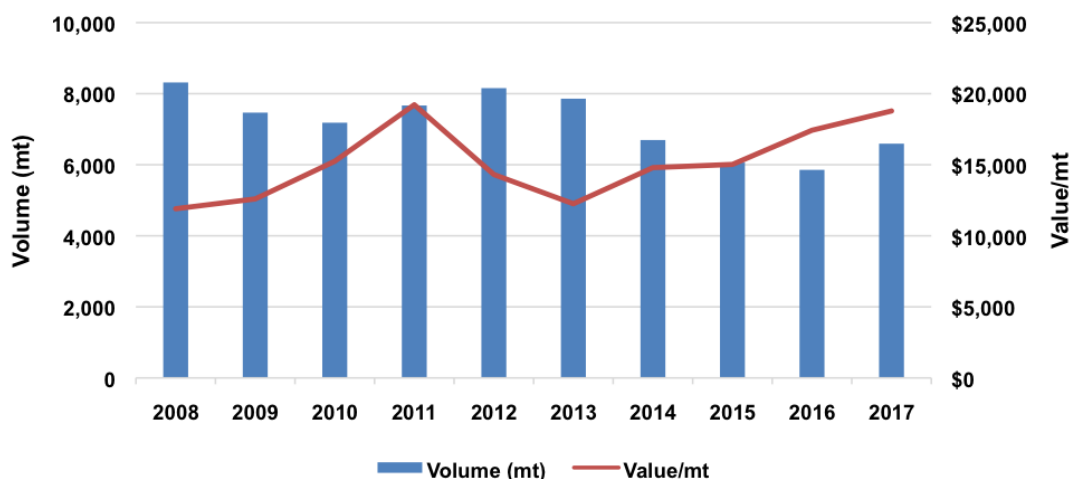


Figure 8.13: First wholesale volume and value of Alaska sablefish, 2008-2017.

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|--------------------|--------|--------|---------|---------|---------|--------|--------|--------|---------|---------|
| Value (\$millions) | \$99.0 | \$94.0 | \$109.5 | \$147.4 | \$116.7 | \$96.3 | \$99.1 | \$91.1 | \$102.1 | \$123.8 |
| Volume (mt) | 8,315 | 7,467 | 7,183 | 7,667 | 8,156 | 7,859 | 6,696 | 6,062 | 5,856 | 6,593 |

Source: AKFIN.

Table 8.22: Estimated export volume and value of Alaska-harvested sablefish, 2013-2017.

| Country | 2013 | 2014 | 2015 | 2016 | 2017 |
|---------------------------|---------------|---------------|---------------|---------------|---------------|
| Export Value (\$millions) | | | | | |
| Japan | \$62.0 | \$52.4 | \$45.8 | \$44.5 | \$54.1 |
| Hong Kong | \$4.7 | \$5.1 | \$7.4 | \$10.5 | \$7.9 |
| China | \$2.2 | \$2.4 | \$5.5 | \$6.1 | \$7.6 |
| Netherlands | \$0.5 | \$0.8 | \$0.7 | \$1.3 | \$2.8 |
| United Arab Emirates | \$0.8 | \$1.1 | \$2.4 | \$1.5 | \$2.5 |
| Other | \$11.4 | \$9.8 | \$12.0 | \$12.0 | \$8.0 |
| Total | \$81.6 | \$71.5 | \$73.8 | \$76.0 | \$82.9 |
| Export Volume (mt) | | | | | |
| Japan | 5,893 | 4,477 | 4,137 | 3,374 | 3,787 |
| China | 194 | 187 | 353 | 441 | 563 |
| Hong Kong | 340 | 282 | 397 | 490 | 333 |
| Netherlands | 71 | 68 | 54 | 70 | 151 |
| United Arab Emirates | 57 | 57 | 117 | 68 | 112 |
| Other | 837 | 637 | 840 | 731 | 486 |
| Total | 7,391 | 5,710 | 5,898 | 5,174 | 5,432 |

Source: ASMI Export Database.

Japan The primary market for sablefish is Japan, a country that pioneered the commercial harvest of the species in Alaska. The Tokyo Central Wholesale Market plays an important role in sablefish markets.¹² Between 1987 and 2013, an estimated 37 percent of Japan sablefish imports (from all countries) were sold at this market. Prices observed at the Tokyo Central Wholesale Market function

¹²<https://www.st.nmfs.noaa.gov/Assets/commercial/market-news/sablefishSupplyMarket2014.pdf>

as a price index, impacting sablefish values globally. The United States is the primary supplier of sablefish to the Japanese market, accounting for 91 percent of imports between 2012 and 2017; Canadian supply accounted for the remainder (Table 8.23). Currency rates are an important factor impacting sablefish markets. When the yen is relatively strong against the dollar, Japanese buyers are able to purchase more U.S.-sourced sablefish.

Table 8.23: Japan frozen H&G sablefish imports, by major trade partner, 2012-2017.

| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Import Value (\$millions) | | | | | | |
| U.S. | \$106.9 | \$90.3 | \$87.6 | \$74.8 | \$83.8 | \$86.9 |
| Canada | \$11.4 | \$9.0 | \$8.9 | \$11.4 | \$8.4 | \$8.9 |
| Total | \$118.2 | \$99.3 | \$96.6 | \$86.2 | \$92.2 | \$95.7 |
| Import Volume (mt) | | | | | | |
| U.S. | 8,324 | 7,655 | 6,514 | 5,749 | 5,691 | 5,258 |
| Canada | 789 | 725 | 668 | 841 | 544 | 481 |
| Total | 9,113 | 8,380 | 7,182 | 6,590 | 6,235 | 5,739 |
| Import Value/mt | \$12,973 | \$11,850 | \$13,443 | \$13,078 | \$14,793 | \$16,681 |
| Avg. Yen/USD | | | | | | |
| Exchange Rate | ¥80 | ¥98 | ¥106 | ¥121 | ¥109 | ¥112 |

Notes: Volume is in product-weight terms.

Source: Global Trade Atlas and St. Louis Federal Reserve Bank (currency rates).

United States The estimated size of the U.S. market for sablefish increased from about 3,200 MT to 7,200 MT between 2013 and 2017, due to increased imports and reduced exports (Table 8.24). Imports grew from 269 MT in 2013 to 1,756 MT in 2017, due to increased supply from Canada. Concurrently, export volume of U.S. sablefish declined as a result of reduced landings, high prices, and a relatively weak yen which affected shipments to Japan.¹³

Table 8.24: Estimated U.S. sablefish market size, in metric tons, 2013-2017

| Year | Est. U.S. Whole-sale Production | U.S. Imports | U.S. Exports | Est. U.S. Market Size |
|--------------------------|---------------------------------|--------------|--------------|-----------------------|
| 2013 | 11,609 | 269 | 8,670 | 3,208 |
| 2014 | 10,411 | 696 | 6,665 | 4,442 |
| 2015 | 10,385 | 1,406 | 6,664 | 5,127 |
| 2016 | 9,899 | 1,747 | 5,577 | 6,069 |
| 2017 | 11,140 | 1,756 | 5,733 | 7,163 |
| Five-year Average | 10,689 | 1,175 | 6,662 | 5,202 |

Notes: An average recovery rate of 65 percent is used in this analysis to make volumes comparable.

Source: McDowell Group estimates, based on data from NMFS and AKFIN.

¹³<https://www.seafoodnews.com/Story/971116/Near-Record-Prices-for-Sablefish-May-Mean-Much-Lower-Consumption-in-Japan>

Global Production and Competing Supply

The United States and Canada account for nearly all global production of sablefish.¹⁴ Alaska is the primary supplier, contributing an annual average of 63 percent between 2012 and 2016 (Figure 8.14). Harvest from other West Coast states accounted for 26 percent of global supply. Of these, Oregon was the most important, followed by California and Washington. Canada (British Columbia) contributed 11 percent to global supply between 2012 and 2016.

Patagonia toothfish (*Dissostichus eleginoides*) is the primary competitor with sablefish. The whitefish has a high oil content and is also known as Chilean seabass or *mero* in Japan. Between 2012 and 2016, the global supply of Patagonia toothfish ranged from about 21,700 MT to 25,600 MT. These figures do not include illegal, unreported, or unregulated (IUU) harvests. In the early 2000s, up to half of Patagonia toothfish harvests were estimated to be IUU landings. Although fisheries management has improved, IUU harvests are likely happening today, though at a smaller scale.

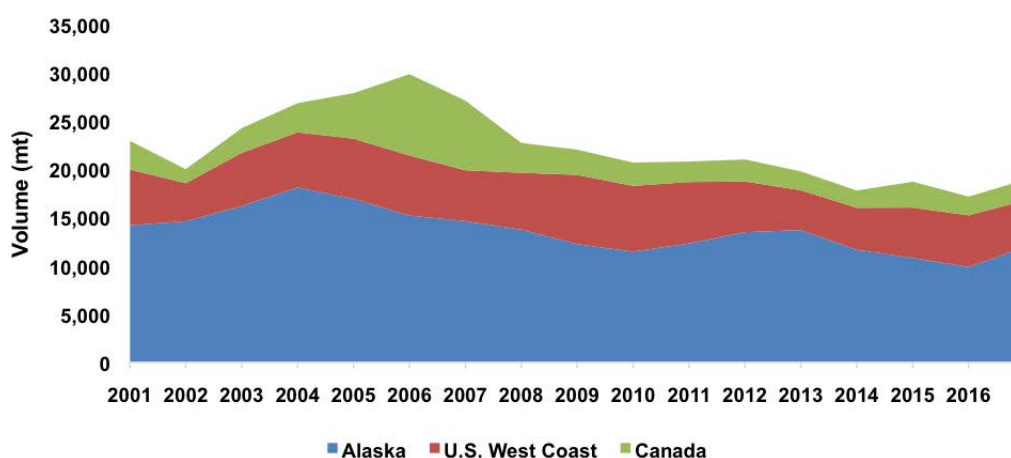


Figure 8.14: Global supply of Sablefish, in metric tons, 2001-2016.

Source: FAO; NMFS OST; AKFIN Production Database.

8.5. Yellowfin Sole, Rock Sole, Atka Mackerel, and Pacific Ocean Perch Market Profiles

Alaska's flatfish fisheries for soles and plaice in the BSAI and GOA, while comprised of more than 10 different species, are dominated by three species of sole (yellowfin, rock, and flathead) and plaice; other species harvested in smaller volumes include Greenland turbot, rex sole, butter sole, Dover sole, and starry flounder. Due to the many harvest and market similarities across this group, this section will treat many species with similar market aspects collectively while including additional detail for the four key species. Alaska's flatfish harvests include considerable volumes of Arrowtooth flounder; this species is covered in separate profile and not discussed in detail here.

Yellowfin sole (*Limanda aspera*) is the most abundant commercial flatfish in the eastern Bering Sea and the world's largest single flatfish fishery by volume, representing 14 percent of the global flatfish harvest. Overall, the species represented 48 percent of the first wholesale value of all Alaska

¹⁴Between 2000 and 2016, Russia periodically produced small volumes of sablefish. The highest annual volume for this period was 50 MT harvested in 2002; average annual harvest was 15 MT.

flatfish in 2017 with a first wholesale value of \$110.8 million (Table 8.25).¹⁵ The vast majority of this production is frozen H&G product destined for export to China for reprocessing or export to South Korea for reprocessing and domestic consumption.

Table 8.25: Summary profile of yellowfin sole wholesale production and markets, 2017.

| Value and Volume | | Key Products | H&G | Whole Round | Other |
|--|---------|--|-------|-------------|-------|
| First Wholesale Production (mt) | 77,102 | Pct. of Value | 89% | 11% | 0% |
| Pct. of Global Flatfish Harvest (2016) | 14% | Key Markets | China | South Korea | Other |
| First Wholesale Value (\$millions) | \$110.8 | Pct. of 1 st Sales | 65% | 13% | 22% |
| Pct. of Alaska Groundfish Value | 4.4% | YoY Change | -20% | -2% | 22% |
| Pct. of Alaska Flatfish Volume | 57% | Competing Species: Other flatfish, tilapia, white-fish | | | |

Rock sole (*Lepidopsetta polyxystra*), the second most abundant BSAI/GOA flatfish by wholesale volume (after yellowfin sole), accounted for 14 percent of the total first wholesale value of Alaska flatfish. Alaska is responsible for the vast majority of the global rock sole harvest, producing 20,200 mt in 2017, valued at \$31.9 million (Table 8.26). Like yellowfin sole, most of Alaska's rock sole production is exported to China and South Korea, though Japan is also an important export market for females with roe. Rock sole generates a higher unit value per metric ton than yellowfin sole due to export markets for rock sole with roe.

Table 8.26: Summary profile of rock sole wholesale production and markets, 2017

| Value and Volume | | Key Products | H&G | H&G with Roe | Whole Round |
|--|--------|--|-------|--------------|-------------|
| First Wholesale Production (mt) | 20,200 | Pct. of Value | 89% | 10% | 1% |
| Pct. of Global Flatfish Harvest (2016) | 4% | Key Markets | China | South Korea | Other |
| First Wholesale Value (\$millions) | \$31.9 | Pct. of 1 st Sales | 70% | 5% | 25% |
| Pct. of Alaska Groundfish Value | 1.3% | YoY Change | -1% | -4% | 5% |
| Pct. of Alaska Flatfish Volume | 15% | Competing species: Other flatfish, tilapia, white-fish | | | |

Atka mackerel production was valued at \$127.8 million in 2017, accounting for 5 percent of the first wholesale value of all Alaska groundfish (Table 8.27). Production value in 2017 was double that of the previous four-year average thanks to a 27 percent increase in harvest volume over 2016 combined with high value/mt nearly equal to the all-time high in 2015. Alaska produced 54 percent of global Atka mackerel harvests in 2017, and nearly all production was exported to Japan, China, or South Korea as a frozen H&G product. Final consumer products include split/salted and surimi and is largely consumed in Japan, Korea, and China. This market profile summarizes production and markets for Alaska's Atka mackerel fisheries.

Atka mackerel is a key species for Alaska's Amendment 80 fleet, which also targets high volume flatfish (sole/flounder) and rockfish (including Pacific Ocean perch). Atka mackerel accounted for 29 percent of the combined wholesale production value of these target species in 2017.

Pacific Ocean perch (*Sebastes alutus* – also known by the acronym POP) is the most abundant rockfish species in Alaska, comprising 81 percent of all Alaska rockfish production in 2017. Overall,

¹⁵“Flatfish” includes all comparable BSAI/GOA flatfish species, including arrowtooth flounder and turbot. It does not include Pacific halibut or skate.

Table 8.27: Summary profile of Atka mackerel wholesale production and markets, 2017.

| Value and Volume | | Key Products | H&G | Other | |
|---|---------|--|-------|-------|-------|
| First Wholesale Production (mt) | 42,231 | Pct. of Value | 91% | 9% | |
| Pct. of Global Harvest (2016) | 54% | Key Markets | Japan | China | Korea |
| First Wholesale Value (\$millions) | \$127.8 | Pct. of Final Sales | 58% | 14% | 9% |
| Pct. Change in Value from Prior 4-yr Avg. | 100% | YoY Change | -16% | -3% | 0% |
| Pct. of Alaska Groundfish Value | 5% | Competing Species: Okhotsk Atka mackerel | | | |

POP represented 2.6 percent of the first wholesale value of all Alaska groundfish in 2017 (Table 8.28). About eighty percent of Alaska's POP is exported to two countries – China (for processing) and Japan (the species' largest consumer market). Alaska POP accounted for 21 percent of global rockfish harvests in 2016. This market profile summarizes production and markets for POP fisheries in Alaska.

Table 8.28: Summary profile of Pacific ocean perch wholesale production and markets, 2017.

| Value and Volume | | Key Products | H&G | Whole | |
|---|--------|--|-------|-------|-------------|
| First Wholesale Production (mt) | 26,000 | Pct. of Value | 91% | 9% | |
| Pct. of Global Rockfish Harvest (2016) | 21% | Key Markets | China | Japan | South Korea |
| First Wholesale Value (\$millions) | \$64.2 | Pct. of Final Sales | 53% | 30% | 5% |
| Pct. Change in Value from Prior 4-yr Avg. | 11.3% | YoY Change | -26% | 25% | -20% |
| Pct. of Alaska Groundfish Value | 2.6% | Competing Species: Redfish and other rockfish species. | | | |

POP is a key species for the Amendment 80 fleet, which also harvests high volume flatfish (sole/flounder), Atka mackerel, and other rockfish species. POP accounted for 11 percent of the combined wholesale value of production by the Amendment 80 fleet in 2017.

Key Market Analysis

China Alaska soles and plaice require hand processing, which is labor-intensive. Due to lower labor costs, China is responsible for reprocessing most Alaska-caught flatfish, with yellowfin and rock sole providing the largest volume. Approximately 80 percent of all China's flatfish exports go to Europe, Japan, and the United States. As China's economy has grown, an increasing number of sole has remained in the domestic market.

Though not reflected in 2017 trade statistics, 2018 has brought a great deal of uncertainty to Alaska's flatfish industry due to its dependence on China and the tariffs and trade disputes between China and the U.S. At this time, the uncertainty surrounding tariffs or other intensifications in a U.S.-China trade dispute has already caused supply chain disruptions, with more U.S. flatfish being processed in the U.S., Poland, and other parts of Southeast Asia. As approximately 25-35 percent of Alaska flatfish product that is exported to China returns to the U.S., many custom-processors of flatfish for the U.S. have been actively looking for new markets and switching to Russian or other non-Alaska product.¹⁶

¹⁶Per seafood industry representative, 2018.

From 2015 to 2017, exports to China accounted for 53 percent of all POP production. This includes a strong 2016 when 60 percent of production went to the Chinese wholesale market. Virtually all POP and other rockfish exported to China consists of frozen whole or H&G fish, which is filleted, and re-exported.

Japan Though most Alaska flatfish exports are directed at China, Japan is an important export market, importing 5 percent of Alaska’s rock sole production volume in 2017, primarily females with roe intact. Japan, as the largest flatfish export market for China, also imports a great deal of Alaska flatfish reprocessed in China, particularly rock sole roe and flatfish kirimis.

Japan is the largest consumer market for POP. Depending on the product form demanded, importers buy frozen fish from Chinese (fillets) or Alaska (H&G/whole) processors and distribute the product to retailers or food service establishments. Direct exports from Alaska to Japan generally represent a quarter to a third of all Alaska production. Alaska is Japan’s largest rockfish/redfish supplier, both in direct terms and product routed through China. Europe is the second largest supplier, followed by domestic production and Russian imports.

The majority of Alaska’s Atka mackerel is exported to Japanese markets. Retail wholesale Atka mackerel prices have risen due to declining harvests in Japan. While declining harvest trends in Japan put Alaska in a better market position, Japanese consumers are extremely flexible when it comes to substituting seafood species. For surimi producers – which historically have used both Atka and horse mackerel¹⁷ for Japan’s domestic surimi production – declining harvests and rising prices have already prompted Japanese surimi producers to substitute Atka mackerel with other species for surimi production.

US & Europe The U.S. and Europe consume a large amount of flatfish, much of it processed in China. Both end markets consume sole, plaice, and flounder (often commingled and sold as “flounder” or “sole”) in fast food restaurants as well as in grocery stores in the frozen aisle. The U.S. remains China’s second largest export market for flatfish, receiving 17,976 mt of flatfish valued at \$92.5 million in 2017, an increase of 11 percent over 2015 value.¹⁸

In Europe, key export markets include the Netherlands, France, Spain, Poland, and Germany, all of which have a seafood processing sector that could further transform and distribute flatfish products across Europe. While Alaska is very dependent on China for reprocessing its flatfish harvest, both the U.S. and Europe have access to other sources of flatfish from across the globe and are thus not fully dependent on China for flatfish products. The EU produces large volumes of competitor species of flatfish that are consumed domestically and exported to the U.S. The U.S. also imports a large volume of flatfish from Canada.

¹⁷“Horse mackerel” is a generic name given to a range of species, predominantly from the Carangidae (jack mackerels and scads) family. Fish included in the *Trachurus* (including Atlantic horse mackerel) and *Caranx* genera encompass most of the horse mackerel category.

¹⁸Global Trade Atlas

Competing Supply

Global flatfish supply has remained fairly constant over the past two decades after declining significantly from harvest levels attained in the 1980s that exceeded 1.2 million mt annually. In contrast, Alaska's contribution to global production of flatfish has grown steadily from tiny volumes in the 1980s. Alaska flatfish continue to compete with species such as European plaice and dabs, and have remained popular for use in frozen meals and as frozen fillets/kirimis in the U.S., Japan, and Europe. Competition comes from fresh flatfish as well as from fresh/frozen whitefish like tilapia, pangasius, pollock, and cod, among others.

Alaska accounted for 42 percent of global Atka mackerel production between 2014 and 2016, the most recent three years with complete data for global harvest. Historically, Japan is the largest producer but its harvests have declined significantly since 2008 - down 90 percent through 2016.

Global rockfish (including POP and other *Sebastes* species) harvests averaged 218,372 mt from 2012 to 2016 and increased roughly 20 percent over the period. Europe is the largest redfish/rockfish producer, accounting for just over half (52 percent) of total production in 2016. Alaska POP accounted for one-fifth (21 percent) of global rockfish production in 2016, and 88 percent of all rockfish production in the United States.